Spending Time with One's Partner

The Interplay Between Dimensions of Shared Time, External Stress, and Couples' Relationship Functioning

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ABSTRACT

Time shared with one's partner is central for couples' togetherness and cohesion. Current studies show, however, that a considerable share of people is not entirely satisfied with the time spent together as a couple. With the aim to extend our knowledge about underlying mechanisms involving couples' shared time, the current dissertation investigates the interplay of three dimensions of shared time (quantity, quality, and satisfaction) and takes external stress (i.e. stress originating outside the relationship) into consideration. Integrating influential theories and findings from stress and leisure research, a Time-Mediation model is proposed. The model postulates that negative spillover processes of external stress into the intimate relationship are mediated by shared time. The results of three empirical contributions presented in the current work provide noteworthy evidence in favor of the proposed Time-Mediation model. Four main conclusions can be summarized: (1) Negative spillover effects of minor external stress on satisfaction with shared time are partially mediated via less time quality and reduced time quantity on a daily basis. (2) It is the time quality rather than the time quantity that is more strongly related to satisfaction with shared time and relationship functioning; however, time quantity and time quality interact. (3) There is substantial variability between individuals in the degree of how strongly time quantity and time quality are related to relationship outcomes. More time quantity, for example, might be particularly beneficial for partners who engage less in self-disclosure or experience more internal distress. (4) The importance of shared time varies on the weekend versus on a weekday.

The current work provides a framework for future investigations and is of particular practical significance for couples. Ultimately, extending this line of research in the future might be a promising pathway to be able to help couples preserving their relationships.

ZUSAMMENFASSUNG

Die gemeinsam verbrachte Zeit als Paar wird als ein zentraler Faktor für glückliche Partnerschaften angesehen. Aktuelle Studien zeigen jedoch, dass ein erheblicher Anteil von Personen nicht zufrieden ist mit der gemeinsamen Zeit als Paar. Diese Dissertation untersucht das Zusammenspiel zwischen der Menge an Zeit, die Paare gemeinsam verbringen, der Zeitqualität und der subjektiven Zufriedenheit mit der gemeinsamen Zeit unter Berücksichtigung von Belastungsfaktoren, die ihren Ursprung außerhalb der Partnerschaft haben (externer Stress). Basierend auf Grundlagen maßgebender Stresstheorien und empirischer Erkenntnisse der Freizeitforschung wird in der vorliegenden Arbeit ein Zeit-Mediations-Modell vorgestellt, in dem die unterschiedlichen Zeitdimensionen den negativen Einfluss von externem Stress auf das partnerschaftliche Funktionsniveau mediieren. Die Ergebnisse der drei empirischen Beiträge dieser Dissertation liefen vielversprechende Belege, die auf eine Gültigkeit des Zeit-Mediations-Modells hinweisen. Es lassen sich vier zentrale Befunde zusammenfassen: (1) Negative Spillover-Effekte von externem Stress auf die Zufriedenheit mit der gemeinsamen Zeit werden intraindividuell anteilig über verminderte Zeitqualität und eine reduzierte Zeitquantität vermittelt. (2) Es ist die Qualität der Zeit, die stärker mit der Zufriedenheit mit gemeinsamer Zeit und dem allgemeinen Funktionsniveau von Paaren in Beziehung steht; Quantität und Qualität interagieren jedoch. (3) Es zeigen sich erhebliche Unterschiede darin, inwiefern einzelne Personen von größerer Zeitquantität oder -qualität profitieren. Ein größeres Zeitbudget mit dem Partner scheint besonders für die Beziehung von den Paaren förderlich zu sein, die sich weniger über ihre Erlebnisse austauschen oder die Zeit mit ihrem Partner als konfliktbehafteter erleben. (4) Der gemeinsamen Zeit kommt am Wochenende und an Wochentagen eine unterschiedliche Bedeutung zu. Die aktuelle Arbeit bietet eine vielversprechende Grundlage für weiterführende, künftige Forschung und ist von besonderer praktischer Relevanz für Paare.

PREFACE

The time romantic partners spend together as a couple[1] (shared time) is central for intimate relationships. The present thesis contributes to the scientific debate of which time dimension matters most for couples' relationship functioning and how they interact particularly, when stress is experienced outside the relationship.

As a starting point, Chapter 1 of this thesis illustrates why *time* deserves particular consideration also within the field of couple research. Chapter 2 elucidates which challenges have greatly hindered progress towards a generally valid definition of the concept of shared time. Moreover, it is highlighted in this section how a discrimination of dimensions of shared time can facilitate a better understanding of the consequences of shared time for couples' relationship functioning. Chapter 3 familiarizes the reader with relevant theoretical approaches that contribute to the understanding of time in the context of intimate relationships. Chapter 4 summarizes sources of empirical evidence which emphasize the importance of *time quantity*, *time quality* and *satisfaction with shared time* for couple's relationship functioning. In Chapter 5, a new theoretical model for investigating and understanding mediational mechanisms of shared time is introduced. The model integrates theoretical approaches and empirical findings from the fields of stress and leisure research and accounts for different dimensions of shared time.

The empirical part of this thesis is started out by outlining own research objectives (Chapter 6). The three empirical studies that were conducted for this dissertation to test the central assertions of the proposed model are then presented in Chapters 7 to 9. In Chapter 10, findings are summarized and discussed with regard to limitations and are embedded within a broader ecological context. Lastly, practical implications are reflected for future research investigating shared time and the clinical work with couples.

[1] For reasons of simplicity, time spent together as a couple will further be referred to as 'shared time' and used interchangeably with the longer term. Throughout this thesis, the term shared time already implies that the romantic partners are the actors spending time together, even though theoretically it could be transferred to other interpersonal systems.

INTRODUCTION AND LITERATURE REVIEW

1. Introduction

„Zeit ist's, daß es Zeit wird."
Karlheinz A. Geißler, (2000, p. 23)

Time shared with one's partner is central for couples' togetherness and cohesion and was found to be positively related to a variety of favorable relationship outcomes, such as less marital disagreement (Hatch & Bulcroft, 2004), higher marital satisfaction (e.g., Johnson & Anderson, 2013; Kilbourne, Howell, & England, 1990; Kingston & Nock, 1987; Orthner, 1975), higher marital happiness (Kirchler, 1988; White, 1983), or marital stability (Hill, 1988). In Greek mythology it was known that the time has two faces: Chronos and Kairos. The god Chronos *chrono*logically keeps track of the amount of time and experiences; Kairos is the god of the right moment, grasping an opportunity by the forelock and making the most out of the time he has got (cf. Weinelt, 2005). Up until now, it was not sufficiently clear how much the mere *amount of time spent together (time quantity)* contributes to a satisfying relationship or whether it is spending the right moments together (*time quality)* that solely predicts relational outcomes. Recent research, in fact, suggests that the partners' *satisfaction with (leisure) time* spent together as a couple may be the most prominent factor (Berg, Trost, Schneider, & Allison, 2001; Johnson, Zabriskie, & Hill, 2006). As no study has yet reliably disentangled these three dimensions of shared time and analyzed how their interplay relates to both partners' relationship functioning, the first goal of this thesis is to address this desideratum.

In the late '80s, Holman and Jacquart suggested that the relationship between stress, shared leisure time, and marital satisfaction is a "fruitful area for further study" (1988, p. 76); however, only few scientists have taken up on the challenge. Attempts have been made to monitor shared time throughout the process of major life transitions (e.g., transition to parenthood; Claxton & Perry-Jenkins, 2008); but so far, surprisingly little is known about

how much time spent together in what way is necessary for couples exposed to a lot of minor external stress (i.e. stress originating outside the relationship such as daily hassles or work-related stress) to be satisfied and able to maintain a stable relationship. Individuals increasingly struggle between conflicting responsibilities in different domains of life (e.g., work demands, child care; Gershuny, 2000; Hochschild, 1997) and subjectively experience 'time stress' (Levine, 1997) or 'time scarcity' (Pronovost, 1989). A considerable share of women and men report a lack of time for their partners and children (Jurczyk & Heitkötter, 2012; Matos & Galinsky, 2010; Roxburgh, 2006). Therefore, the second goal of this thesis is to contribute to the understanding of stress spillover mechanisms within intimate relationships by examining how minor external stress affects the different dimensions of shared time.

2. The concept of shared time

In the 1970s, research in the field of leisure science had started to link the time romantic partners spend together as a couple to relationship quality[2]. Since then empirical studies investigating intimate relationships have occasionally included 'time spent together' as a predictor variable; however, shared time has not been the focus of research interest and still plays a marginal role in the field of couple psychology.[3] Hence, it is not particularly surprising that to date not much thought has been given to the definition of shared time and it has been operationalized in different ways in prior studies. In this chapter I will firstly reflect on the challenges of defining shared time, secondly propose a framework that incorporates different dimensions of shared time, and thirdly, take into consideration the interplay of these dimensions of shared time.

[2] The terms 'relationship' quality and 'marital' quality are used interchangeably. Depending on the sample studied, both terms are widely used. Concepts or processes often apply to married as well as unmarried couples.
[3] Conversely, the time parents spend together with their children –family time– has received much attention in the psychological literature. Even though concepts are introduced when applicable, family time will not be treated within the scope of this work.

At first glance defining (and measuring) shared time seems to be an easy task. Based on simplified definitions from physics, time is 'what a clock reads' (Considine & Considine, 1985). Modern technology has facilitated timekeeping, so the duration of different happenings can easily be assessed and compared in standardized units (e.g., seconds, minutes, and hours). At the second glance, however, answering the harmless question 'What is shared time?' and, consequently, its measurement proves to be far more difficult. Not only psychologists and neuroscientists (e.g., Fraisse, 1984; Meck, 2005; Zimbardo & Boyd, 1999) agree that the experience of time is highly subjective, even physicists acknowledge that time is relative depending on motion and space (theory of relativity; Einstein, 1916).

"Put your hand on a hot stove for a minute, and it seems like an hour. Sit with a pretty girl for an hour, and it seems like a minute. That's relativity."

Albert Einstein

2.1. Challenges of defining shared time

The difficulty regarding the conceptualization and assessment of shared time in a couple context centers around three questions that require clarification: (1) Is the physical proximity of the partners a necessary condition for shared time? (2) Does the quality of shared time matter, and how can it be determined? (3) What if perceptions of shared time differ between partners within a couple (intersubjectivity)?

2.1.1. Physical proximity

First, the question arises whether both partners have to be physically in the same place to be able to experience shared time. From a communication theory point of view, spatio-temporal proximity should be highly relevant, as main messages are often not transmitted verbally but paraverbally (e.g., intonation, semantic content) or nonverbally (e.g., gestures, facial expressions, posture) (Watzlawick, Beavin, & Jackson, 1967). Only physical proximity allows for direct nonverbal communication and touch, which are known to foster couple's intimacy (Debrot, Schoebi, Perrez, & Horn, 2013; Guerrero & Floyd, 2006; Prager, 1995).

Conversely, it can be argued on the basis of the theory of ambiguous loss (Boss, 1983) that spatiotemporal proximity cannot be considered a necessary criterion for shared time. A partner may be physically present but psychologically absent at the same time. In contrast, partners may perceive the physically absent partner as psychologically present. Nowadays, the use of modern technologies (e.g., telephone, mail, SMS, Skype) enables couples to share thoughts and intimate feelings even across long distances and time zones. This prompts the question: Do couples have to engage in a mutual activity to define time together as such? What about, for example, if both partners are physically present in the same place at the same time (e.g., in the living room), engaging in totally different activities (e.g., one partners is reading a newspaper, while the other is working at the computer) and hardly talking to each other? Depending on the type of couple (e.g., 'avoider couples' based on Gottman, 1994), partners might record such hours of mutual silence being side by side as shared time when asked to keep a daily diary, whereas others might not. Furthermore, couples (and scientists) may differ greatly in whether they consider time spent in the presence of the partner and other family members –children in particular– as time spent *with* the partner.

2.1.2. Determining time quality

This already touches on the second challenge of conceptualizing shared time. Even if we agreed on what counts as shared time allowing us to measure the frequency and duration of these interactions, this would not yet capture the quality of shared time. According to findings from leisure research, it is not only the net amount of time spent together that matters for relationships, but also *how* the time is spent (e.g., Aron, Norman, Aron, McKenna, & Heyman, 2000; Flora & Segrin, 1998; Holman & Jacquart, 1988; Orthner, 1975; Reissman, Aron, & Bergen, 1993). Thus the quality of shared time should be determined additionally to the time quantity.

To do so, social scientists called for a measure that explicitly includes the degree of interaction during a shared activity for studying influences of shared time on marital

outcomes and advised against just using lists of activity forms[4] early on (cf. Holman & Epperson, 1984; Kelly, 1974). Orthner (1975) objectified time quality by rating the degree of communication during specific leisure activities establishing activity patterns (individual, parallel, joint). However, ultimately pre-defined activity patterns do not consider that the level of the communication of a mutual activity (e.g., watching a movie) may very much depend on the couple (Holman & Jacquart, 1988). For example, a couple that shares a passion for motion pictures may experience a different time quality when watching a movie together (intensively reflecting about it afterwards), in comparison to a couple that does not. In addition, information about available channels of communication (verbal, paraverbal, nonverbal) seems necessary to determine the quality of time spent together. For example, spending time on the phone allows for mutual self-disclosure, but leaves out the nonverbal channel (e.g., body posture of attentive listening) and the option for touch (e.g., physically comforting the partner), making it a less encompassing couple experience than having the same conversation face to face.

In American society, the keyword *quality time*[5] is widely used to describe "time in which one's child, partner, or other loved person receives one's undivided attention, in such a way as to strengthen the relationship" (Oxford Dictionary; Matthews, 2007). Especially with reference to working parents and their children, quality time is to be spent engaged in scheduled activities or special events, to make up in quality for what allegedly is missed in quantity (Daly, 1996, 2001a; Galinsky, 1999; Kremer-Sadlik & Paugh, 2007). Dyck and Daly (2006) ventured into 'uncharted territory' when they conducted a qualitative study with 14 dual-earner couples (all having children) to explore what is meant by quality time for them. For the partners they interviewed 'couple time' was "'adult time', 'Mummy and Daddy time',

[4] The forms of activities are classified by the content of an activity, reflecting what is done (e.g., watching television) irrespective of where or with whom an activity is pursued (cf. Holman & Epperson, 1984; Kelly, 1974).

[5] Foremost, the English term quality time and the specialness connected to it seems to characterize the concept of time in the United States, in the other European languages there is not necessarily a corresponding idiom (Kremer-Sadlik, Fatigante, & Fasulo, 2008).

'our time', 'couple time like before we had kids', 'alone time for us', 'time without kids', 'quality time', 'one-on-one time', 'meaningful time as a couple', 'time for ourselves', 'prime time', 'grown-up time', and 'personal time together'" (Dyck & Daly, 2006, p. 206). In summary, couple time was generally described as time focused exclusively on the couple and as an important relationship maintenance strategy intending to preserve a sense of couple identity (see also Baxter & Dindia, 1990). As Dyck and Daly (2006) observed, however, the notion that rare scheduled moments alone together as a couple should be extra special and the implicit connotation that it should involve sexual intimacy, exerted a lot of internal pressure on the couples. Additionally, cultural norms of how much quality time one should spent together engenders the feelings of remorse and 'time famine' among busy (working) couples towards their spouses and children (Daly, 2001a; Galinsky, 1999; Gillis, 1996, 2001; Kremer-Sadlik, Fatigante, & Fasulo, 2008; Kremer-Sadlik & Paugh, 2007).

And yet, unscheduled or unstructured moments couples share during everyday life can also enhance relationships and foster a sense of couple identity, and improve mutual communication and closeness (Fraenkel, 1994; Fraenkel & Wilson, 2000; Kremer-Sadlik & Paugh, 2007). Albeit activities such as doing household tasks (e.g., cleaning dishes), eating together, or attending to daily errands (e.g., a doctor's visit) might not be considered 'quality time' or 'couple time' in its popular sense, they still can be experienced as quality moments *and* they constitute more than a third of all the time couples spend together (not taking sleeping hours into account) (Glorieux, Minnen, & Tienoven, 2011). Hence, limiting research activities to leisure or 'quality/couple time' as described above would neglect a fair proportion of shared time together that might be highly relevant for couples' functioning and their relationship satisfaction on the long run.

Marital and family systems have opposing needs of cohesion and adaptability (Olson, 1993). In the core and balance model of family leisure Zabriskie and McCormick (2001, see also Zabriskie, 2000) argue, that family systems employ core and balance activities

(characterized by different qualities) to meet these opposing needs. To satisfy the need of cohesion and closeness, families engage in core activities, which are common and safe, usually home or neighborhood based, spontaneous and informal (e.g., watching television, eating dinner, going on walks together, doing chores together). To foster skills to adapt to change, families utilize balance activities, which are out of the ordinary, less frequent, more exciting, require more resources and planning and provide a context of novel experience (e.g., opera performance, outdoor recreation like camping, vacations). The authors emphasize that *both* types of activities are essential to successfully function as a (couple) system. So even when engaging in balance activities that –according to the definitions– should be closely linked to 'quality time', it does not necessarily imply that it is perceived as such: The subjective evaluation of the quality of a mutual activity may depend very much on momentary needs of the couple and other situational factors.

2.1.3. Intersubjectivity of time perceptions

A third reason further enhances the complexity of the concept of shared time: The idiosyncratic perception of time varies greatly between persons (e.g., Fraisse, 1984; Zimbardo & Boyd, 1999), hence also *within* a couple. While one partner may perceive the amount of time spent together as long, the same duration of time may be short for the other. Assuming that partners may dwell in time to a varying extent, it is not surprising that couples' reports on the quantity of shared activities or the amount of time spent together correlate only moderately between partners (e.g., Claxton & Perry-Jenkins, 2008). The quality of time spent together is even more contingent to interpersonal subjectivity: It may be dependent on a number of personal characteristics (e.g., need for shared time, attachment style, goal orientations, attribution processes, etc.) and situational factors, making it difficult to establish one intersubjective trans-situational unit of shared time. For example, in a study conducted by Crawford et al. (2002), the association between companionate leisure and relationship satisfaction depended on how compatible the spouses were in their leisure interests and

whether they pursued activities together that they mutually enjoyed rather than activities that only one of them liked. Pursuing leisure activities liked by husbands but disliked by wives, whether as a couple or by husbands alone, was both a cause and a consequence of wives' marital dissatisfaction. In general, shared time has been found to be more relevant for female's marital satisfaction (e.g., Holman & Jacquart, 1988) or marital distress levels (e.g., Smith, Synder, Trull, & Monsma, 1988) than for male's, respectively.

2.2. Conceptualization of dimensions of shared time in the present thesis

The different views described above have demonstrated that the definition of shared time in the context of relationship research is complex. One single measure of shared time will not be able to meet the requirement of (a) considering the issue of physical proximity, (b) determining time quality, and (c) allowing for intersubjectivity of time perceptions simultaneously. In order to unveil the complexity and to allow for investigating mechanisms involving shared time within couple relationships, three separate dimensions of shared time are distinguished in the current thesis:

(1) the *quantity* of time spent together as a couple

(2) the *quality* that characterizes the time spent together, and

(3) the perceived *satisfaction* with the time spent together.

All three dimensions are closely linked, but still capture a unique aspect of shared time. Although one could claim that the subjective experience made by the couples is most suitably indicating time quality, distinguishing qualities (in terms of characteristics) from subjective evaluations of shared time offers a more differentiated approach to study processes involving shared time and has proven its usefulness with regard to other couple related concepts (e.g., relationship satisfaction vs. relationship quality; cf. Huston, McHale, & Crouter, 1986; Norton, 1983). Drawing from communication theory, sociological conceptualizations and findings from leisure research, the three dimensions of shared time are defined as following in the current thesis:

First, the dimension *time quantity* refers to the amount of time couples spend together or 'clocked' time, irrespective of any qualitative connotation. It can be objectively quantified in physical units of time (minutes, hours, days, etc.) and includes all encounters between partners (while being awake) that happen (a) at the same place (spatial synchrony), (b) at the same time (temporal synchrony) or (c) both (spatiotemporal synchrony). Physical proximity is considered as a sufficient but not a necessary condition for shared time. According to this definition, mediated interactions (e.g., talking on the phone) would count as time spent together as long as they take place concurrently.

Second, the dimension *time quality* refers to the (objective) nature of shared time. It is theoretically conceptualized as a *set of qualities* (rather than one single entity), that (a) can be determined irrespective of the form of a shared activity, and (b) can be used separately *or* combined into a single index to describe (aspects of) the quality of shared time. Deduced from prior literature (see Chapter 4) and with regard to the definition of time quantity above, the following characteristics (or *qualities*)[6] are considered suitable:

(a) intensity of communication during an activity (e.g., Flora & Segrin, 1998; Holman & Jacquart, 1988; Orthner, 1975, 1976)

(b) channels of communication (verbal, paraverbal, nonverbal) (cf. Crystal Jiang & Hancock, 2013)

(c) degree of novelty, excitement, stimulation, or potential for (shared) self-expansion (e.g., Aron et al., 2000; Reissman et al., 1993)

(d) absence of (destructive) contention (e.g., Gottman, 1994)

(e) presence of others, specifically children (e.g., Dyck & Daly, 2006; Hamermesh, 2000; Huston & Vangelisti, 1995; Lavee, Sharlin, & Katz, 1996; Lenz, 2009; Roxburgh, 2006; White, Booth, & Edwards, 1986).

[6] Not all qualities mentioned here are incorporated in the empirical investigations undertaken in this thesis, but matter from a theoretical perspective and thus should be subject to further inquiry.

Third, *satisfaction* with shared time refers to the subjective emotional-cognitive assessment that represents the degree to which a partner is presently content with the sum of his/her shared couple experiences. It denotes the positive perception or feeling that partners form or gain as a result of time spent with his/her spouse. Depending on the level of comparison, standards, ideals, norms, and values (Fletcher & Simpson, 2000; Thibaut & Kelley, 1959), satisfaction with shared time may be different even within a couple experiencing the same mutual activities.

Within the conceptualization proposed above, *couple quality time* or *couple time* (see Dyck & Daly, 2006) would refer to the proportions of shared time that are characterized by spatiotemporal synchrony allowing for intense interaction on all channels of communication (b) and are reserved exclusively for the couple without other family members present (e) with the implicit or explicit goal of maintaining couples' we-ness or closeness. Whether couple time is perceived as satisfactory, however, is most likely dependent on the degree to which the qualities (a) (c) or (d) are met and whether they are in accordance with the needs and expectations of the partners.

2.3. The interplay between the dimensions of shared time

In the current work, it is assumed that quantity, quality, and satisfaction of time are closely linked. As satisfaction with shared time is seen as the result of an evaluative process, I propose that the 'objective' dimensions of shared time (a) the time quantity, as well as (b) the time quality, and (c) the interaction thereof contribute to the partners' subjective satisfaction with shared time (see Figure 1). For example, partners may be spending high quality time, but wish to spend more time together as a couple, or, reversely, they may perceive the amount of time spent together as appropriate, but wish to spend it in a different way. These couples are likely to report lower overall satisfaction with shared time compared with couples that are content with both, the amount and quality of shared time.

Most theories (see Chapter 3) suggest that quantity and quality of time together influence one's satisfaction with shared time. However, up to now, this premise remains largely untested and the opposite causal interpretation also has substantial merit (cf. Smith et al., 1988). For example, couples, who are highly satisfied with their shared time, might, in consequence, be more motivated to increase the amount of time they spend together. Therefore, one could also argue that the directions of influence are reciprocal (as illustrated by the dotted line in Figure 1). Empirical evidence from the few studies focusing on the causal link of (the quality or quantity of) leisure time spent together and more general marital outcomes (e.g., marital satisfaction, marital stability, etc.) has been inconsistent in this matter (see Hill, 1988; Reissman et al., 1993; White, 1983). [7]

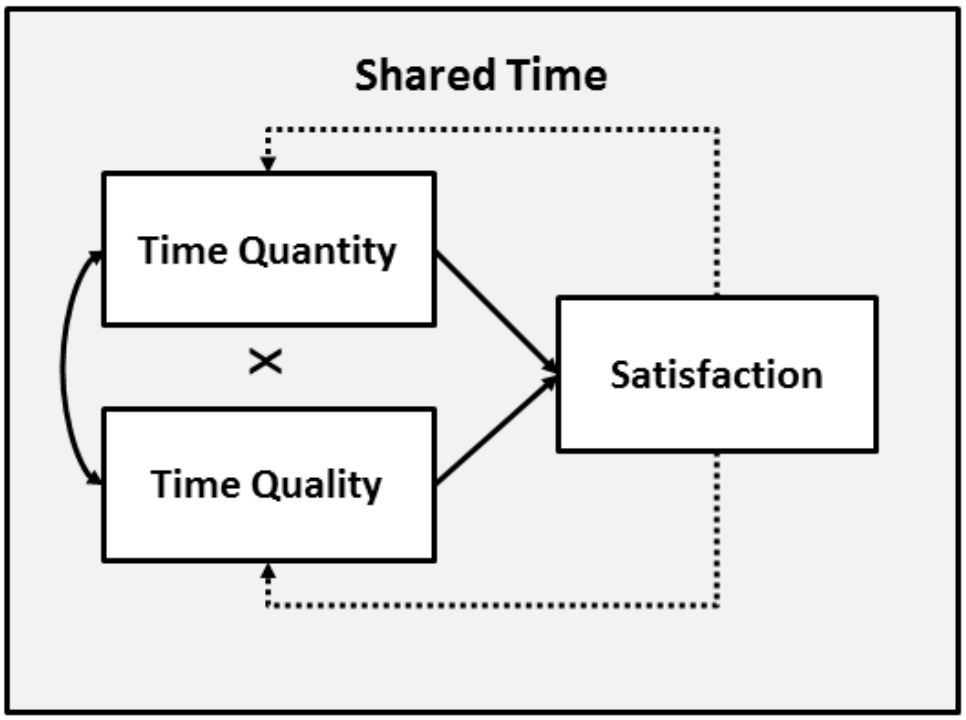


Figure 1. The interplay between the dimensions of shared time.

[7] The data used in the empirical contributions in the current thesis are not suitable to contribute to the debate of causality, but further studies should aim to clarify directionality of causal effects.

3. The role of shared time: Selected theoretical approaches

Time has been and still is a topic of inquiry in many scientific fields – philosophers, physicists, historians, biologists, psychologists, sociologists and many more add to the understanding of time. Hence it is not within of the scope of the current thesis to provide an exhaustive review of existing theoretical approaches on time. Instead, relevant components – also from neighboring disciplines– that contribute to the understanding of shared time in intimate relationships in the context of external stress will be discussed in this chapter. Each approach offers unique insights and looks at shared time from a different angle. In most of the approaches, shared time is not the central focus, but plays a minor role as an independent variable in one way or another affecting relationship functioning. Only few approaches treat shared time as dependent variable and offer explanations which factors contribute to its prediction.

3.1. Shared time as a resource

"Remember that Time is Money. (...) Waste neither Time nor Money, but make the best Use of both."

Benjamin Franklin, Advice to a young tradesman, 21. July 1748

"Time, like money, is a scarce resource that can be spent in different ways."

Medrich, Roizen, Rubin, and Buckley (1982, p. 14)

From the perspective of economy, time is treated as a commodity, a (limited) resource (cf. Marx, 1990). Therefore, it is not surprising that time holds a similar connotation with respect to other life domains than work only. Models based on social learning theory (Jacobson & Margolin, 1979) or social exchange theory (see Kelley & Thibaut, 1978; Thibaut & Kelley, 1959) consider the 'investment' of the resource time in the intimate relationship as a central correlate for commitment, the couple identity, or the stability of a relationship (Agnew, Van Lange, Rusbult, & Langston, 1998; Levinger, 1979; Rusbult, 1983).

From the perspective of social learning theory (Jacobson & Margolin, 1979), the investment of time in the couple relationship could be seen as a kind of positive reinforcement that should (a) increase mutual motivation of both partners to further invest time in the relationship and (b) enhance the satisfaction with the relationship. Prioritizing spending time together as a couple over alternative options of time investment indicates partners' interest and caring, and may positively reinforce reciprocal time investment. Sharing positive moments draws spouses closer together (Hill, 1988). In fact, several studies have shown that a lack of investment of shared time due to high involvement in individual activities (i.e. activities without the spouse present) was associated with less relationship satisfaction and more marital distress (e.g., Baldwin, Ellis, & Baldwin, 1999; Claxton & Perry-Jenkins, 2008; Crawford et al., 2002; Orthner, 1975; Smith et al., 1988).

Along similar lines, in the interdependence model (Kelley & Thibaut, 1978; Levinger, 1979) the investment of shared time can be seen as a reward and 'time scarcity' because of time stress as cost, respectively. In this model, it is assumed that the balance of rewards and costs drive the couple's evaluation of the relationship, resulting in dissatisfaction when costs outweigh the rewards or both do not match relationship expectations. Accordingly, spending more (rewarding) time together should be beneficial for intimate relationships and lead to higher dependence. Like the interdependence theory, the investment model (Rusbult, 1983) suggests that dependence between partners increases to the degree that investment size is high, and numerous important (limited) resources, such as time, become directly or indirectly linked to the relationship. The more time and effort partners have invested in the relationship the more committed they should feel towards each other. At the same time, relationship stability should increase, as divorce or separation would devastate all prior investments.

3.2. Shared time as prerequisite for closeness and intimacy

In the self-determination theory (SDT) of Deci and Ryan (2000) time together is given central attention with regard to the fulfillment of needs (need for autonomy, need for

competence, need for relatedness). It is assumed that the need for relatedness (e.g., longing for closeness) can be satisfied by sufficient time spent together and the involvement in enjoyable joint activities (Patrick, Knee, Canevello, & Lonsbary, 2007).

In the interpersonal process model of intimacy, Reis and Shaver (1988) propose that intimacy accrues via disclosure-responsiveness exchanges between partners across repeated interactions over time. Empirical studies support the notion that couples enhance their feeling of mutual intimacy by spending time together that is characterized by sharing personal information and feelings, and mutual responsiveness (e.g., Laurenceau, Barrett, & Rovine, 2005; Lippert & Prager, 2001). Consequently, spending (more) such time together should foster couples' intimacy and relationship satisfaction.

From the perspective of social psychology, one could argue that the benign experience of repeated exposure to each other by spending time together should in and of itself enhance relationship satisfaction. Zajonc (1968) initiated research on a phenomenon called 'mere exposure effect' centering on the assumption that the sheer repeated exposure to a particular stimulus enhances individual's positive affect towards it (see also Zajonc, 2001). Studies examining the mere exposure effect with regard to interpersonal attraction could show that participants perceived frequently viewed individuals as more attractive and likable than those less frequently seen (e.g., Brockner & Swap, 1976; Saegert, Swap, & Zajonc, 1973).

On the contrary, based on family system theory and Olsen's circumplex model of marital and family systems (1986), it seems plausible that the association between shared time and relationship functioning may not necessarily follow a linear trend (e.g., the more shared time the higher partners' satisfaction) but a curvilinear one (see also Blood & Wolfe, 1965). Too much time together may be a sign for maladaptive entanglement (symbiosis) rather than emotional closeness. According to Olsen (1986), a system operating at a medium level of cohesion (neither too entangled nor too disengaged) should function most effectively. Indeed, researchers have found that just spending a lot of time together (without considering the level

of communication or excitement) was not beneficial for relationship quality (e.g., Flora & Segrin, 1998; Holman & Jacquart, 1988; Orthner, 1975) and might even intensify boredom with each other's company (Aron & Aron, 1986; Aron et al., 2000; Reissman et al., 1993). An appropriate amount of time together can hardly be objectively determined, but must be successfully (re)negotiated between partners with regard to individual needs and situational circumstances: Partners' needs of shared time and involvement in shared activities may change over time and throughout the course of their relationship (for a review, see Holman & Epperson, 1984), especially during times of major transitions (e.g., transition to parenthood; cf. Claxton & Perry-Jenkins, 2008). Huston, McHale and Crouter (1986) exemplified that couple's activity patterns change already within the first year of marriage.

3.3. Shared time and external stress

In stress-theoretical approaches, shared time is also regarded as a (limited) resource (e.g., in the context of family rituals; McCubbin & McCubbin, 1989) or conceptualized as an intermediary variable by which external stress spills over into the relationship (e.g., Bodenmann, 2000; Bodenmann, Charvoz, et al., 2007; Randall & Bodenmann, 2009). In the stress-divorce model, Bodenmann (2000) identifies less time together as one of four key factors that mediate the link between external stress and increasing mutual alienation in couples, ultimately leading to higher marital dissatisfaction and a higher likelihood for divorce. Within a systemic-transactional (STM) framework of stress and coping, Bodenmann (1995) emphasizes that external stress always concerns both partners –directly or indirectly– because one partner's stress reactions (e.g., anger, withdrawal) may cross over to the other partner. Consequently, the likelihood increases to become more estranged from one another and experience less 'we-ness' (Bodenmann, 2000). When couples are chronically exposed to external stressors, the foundation of their intimate relationship may slowly erode over time (see also Karney, Story, & Bradbury, 2005; Randall & Bodenmann, 2009; Repetti, Wang, & Saxbe, 2009).

In stressful periods, couples may spend less time together, hence they have less opportunities to participate in joint leisure or share thoughts and innermost feelings (e.g., needs, desires, etc.) (Bodenmann, Charvoz, et al., 2007). On a busy day (e.g., project deadline at work, last-minute errands for the sports club's Christmas party, etc.), couples are likely to deviate from everyday routines, investing more time in individual task-oriented, problem-focused activities rather than spending time in bonding recreation and shared leisure. Furthermore, individual coping behaviors, like withdrawal, may lead to less self-disclosure between partners, creating an atmosphere of misunderstanding and tension and thus entail more negative dyadic interactions (Repetti, 1989). For example, Bodenmann and Perrez (1992) illustrated in an experimental study that couples' communication quality decreases by 40% after external stress induction. Another study showed that high levels of external stress increased the likelihood for verbal aggression in partners with low coping skills and high anger-trait (Bodenmann, Meuwly, Bradbury, Gmelch, & Ledermann, 2010). Along similar lines, testing the family stress model of economic hardship, for example, Conger and colleagues (Conger, Rueter, & Conger, 2000; Conger et al., 2002; Conger, Rueter, & Elder, 1999) showed that economic pressure triggers emotional arousal and increases negative affect, subsequently leading to internal conflict and withdrawal. Other prominent models of marriage (e.g., vulnerability-stress-adaptation model of marriage; Karney & Bradbury, 1995) also argue that external stress affect close relationships mainly through its influence on ongoing interactions even though the assumed underlying processes differ (see also Kelley et al., 1983). Taken together, external stress is likely to impair the *quantity and quality* of shared time, and subsequently couples satisfaction with the time spent together and the relationship in general.

4. Empirical findings on shared time

„Sie waren besorgt, daß sie nicht für alles Zeit hätten, und erkannten nicht, daß 'Zeit haben' eben bedeutet, daß man nicht für alles Zeit hat."

Robert Musil (1978)

Thanks to a plethora of time use studies and other sociological investigations, we know a lot about (a) *how much time men and women mutually allocate to different everyday activities* (e.g., Aliaga, 2006; Bureau of Labor Statistics, 2008; Gershuny, 2000; Glorieux et al., 2011; Hochschild, 1997; Robinson & Godbey, 1997; Sullivan, 1996; Weißbrodt, 2005), (b) *how time allocation has changed over time* (e.g., Robinson & Godbey, 1997; Sayer, 2005; Voorpostel, van der Lippe, & Gershuny, 2009, 2010), and (c) *which sociodemographic factors limit shared time,* such as working hours (e.g., Glorieux, Mestdag, & Minnen, 2008; Kingston & Nock, 1987; Moen, 2003; Presser, 2000; Spitze & South, 1985; Weißbrodt, 2005), (young) children living in the household (e.g., Belsky, Spanier, & Rovine, 1983; Claxton & Perry-Jenkins, 2008; Crawford & Huston, 1993; Hamermesh, 2000; Huston & Vangelisti, 1995; Jurczyk & Heitkötter, 2012; Lenz, 2009), and cycle or stage of a relationship (Huston et al., 1986; Orthner, 1975; Witt & Goodale, 1981). Interestingly, beyond working hours, children and cycle of relationship, other socio-cultural factors such as income, prestige, or socioeconomic status accounted for very small proportions of the variance in mutual engagement in leisure time (e.g., Bollman, Moxley, & Elliot, 1975; Haavio-Mannila, 1971; Kingston & Nock, 1987).

The average amount of free time that families and couples spend together nowadays has remained relatively stable or even increased in comparison to the past decades (e.g., Robinson & Godbey, 1997; Sandberg & Hofferth, 2001; Voorpostel et al., 2009, 2010). In a re-analysis of the diary data from the American Heritage Time Use Study (AHTUS, Fischer, Egerton, Torres, Pollmann, & Gershuny, 2006), Voorpostel, van der Lippe and Gershuny (2009), concluded that "not only in proportions, but also in absolute minutes, partners spend more

time together in leisure now than 40 years previously" (p. 168). Strikingly, people subjectively experience a lack of time for family and spouse (Daly, 2001a, 2001b; Gillis, 1996; Jurczyk & Heitkötter, 2012; Roxburgh, 2006), and feel that nowadays daily life is hurried by contrast with an idealized interpretation of the past (Southerton, 2003). Meanwhile, an abundance of popular idioms such as 'time scarcity' (Pronovost, 1989), 'the time crunch' (Fox & Nickols, 1983), 'the time bind' (Hochschild, 1997), or 'the time squeeze' (Clarkberg & Moen, 2001) have been used to describe the phenomenon. The notion of spending time together seems to be of great value for couples and families (e.g., Daly, 2001a, 2001b; Gillis, 1996), despite the fact that some individuals might actually escape the burden of family life by seeking refuge at work (Hochschild, 1997). Building up on the theoretical approaches, in this chapter, empirical evidence will be summarized that illustrates the importance of shared time for couple's relationship functioning. In accordance with the model of shared time introduced above (see Figure 1), findings will be presented separately for time quantity, time quality and satisfaction with shared time, even though not all studies explicitly distinguished between them.

4.1. Time quantity and relationship functioning

Early lines of research focused on quantity of time suggesting that simply spending a certain amount of time in joint (leisure) activities is related to marital stability (Hill, 1988), marital satisfaction (e.g., Kilbourne et al., 1990; Kingston & Nock, 1987; Miller, 1976; Snyder, 1979), marital happiness (Kirchler, 1988; White, 1983) or less marital disagreement (Hatch & Bulcroft, 2004). Significant associations of approximately r = .40 between time measures and relationship outcomes were found in separate US studies conducted in the last 30 years (Kilbourne et al., 1990; Kingston & Nock, 1987; Orden & Bradburn, 1968; Orthner, 1975; White, 1983). Conversely, most of the more recent studies have found only small effects of amount of (joint leisure) time –if any– on relationship satisfaction (e.g., Berg et al., 2001; Crawford et al., 2002; Gager & Sanchez, 2003; Johnson et al., 2006). In a dyadic

analysis with 82 heterosexual couples conducted by Berg et al. (2001), neither days nor hours spent in joint leisure were significant predictors of relationship satisfaction. A study comparing 384 college students being in either a long-distance relationship or a geographically proximal relationship detected no significant difference between the two groups in intimacy, dyadic trust or relationship satisfaction (Guldner & Swensen, 1995). On the contrary, in a diary study by Crystal Jiang and Hancock (2013) students in long-distance relationships reported to feel *greater* intimacy to their partners even though they spent less time together face-to-face. Moreover, Gager and Sanchez (2003) found no difference in marital stability between couples that agreed on spending only little time together and couples agreeing on spending a lot of time together. In a diary study conducted in Australia, Feeney (2002) found correlations of more than .30 between time spent with spouse and marital satisfaction, when accounting for average positive and negative spousal behaviors simultaneously. In sum, findings are inconclusive and suggest that *more* shared time may not necessarily be beneficial for intimate relationships (for reviews see Holman & Epperson, 1984; Orthner & Mancini, 1990).

4.2. Time quality and relationship functioning

Research initiated by Orthner (1975) provided consistent findings across different cultures that joint leisure activities characterized by a high level of interaction (or communication) are substantially stronger associated with relationship satisfaction than activities that are not (e.g., Holman & Jacquart, 1988; Palisi, 1984). Certain core joint leisure activities (e.g., eating meals together, going for a walk) may form a better context than others (e.g., watching TV) for promoting mutual self-disclosure, a skill known to be essential for relationship maintenance (Riggio & Zimmerman, 1991) and for the development of intimacy (Reis & Shaver, 1988; see also Laurenceau et al., 2005; Lippert & Prager, 2001).

Results of studies investigating specific forms of mutual pastime are heterogeneous, depending on which outcome variables were examined and which measurement instruments

or study designs were used. In an experiment conducted by Flora and Segrin (1998), non-romantic and romantic dyad members felt higher social and psychological leisure satisfaction in a relaxed unstructured interaction in comparison to the competitive gaming or the parallel TV visioning conditions. In contrast, analyzing time diary interview data from the Time Use Longitudinal Panel Study, Hill (1988) revealed that more hours spent in joint TV watching was related to higher marital stability approximately five years later, whereas more hours spent in joint non-TV passive leisure (e.g., relaxing), joint social leisure (e.g., visiting friends, going to the movies, etc.) or joint organizational leisure (e.g., going to church, community meetings, etc.) were unrelated to marital stability. However, hours spent in active recreation (e.g., doing sports, camping, etc.) emerged to be the best predictor of marital stability among all five leisure activity forms (Hill, 1988). Along similar lines, Reissman, Aron, and Bergen (1993) concluded from the results of their experimental study that the mutual engagement in exciting versus merely pleasant activities may be more suitable to enhance couples' marital satisfaction. They argue that pursuing activities together that are novel, stimulating and create opportunities for self-expansion might help to combat boredom within a relationship (see also Aron et al., 2000). In a similar manner, Presvelou (1971) deduced from his findings that conjugal partners who share their free time creatively and intellectually stimulating feel emotionally closer to each other and vice versa. In summary, different types of joint activities might be differently related to relationship satisfaction and stability.

4.3. Subjective satisfaction with shared time and relationship functioning

One largely neglected topic has been the subjective evaluation of shared time. The few studies that included an evaluative component into their analyzes, in fact, suggest that rather than 'objective' time quantity or quality, the couples' satisfaction with (leisure) time might be the key factor for predicting relationship quality (Berg et al., 2001; Johnson et al., 2006). Johnson, Zabriskie and Hill (2006) identified participants' satisfaction with core activities as the only significant predictor of marital satisfaction when concurrently analyzing the total

couple leisure time, the mutual involvement in core versus balance leisure activities, and the subjective leisure satisfaction. This result should be interpreted with caution, however, as the sample size was small (N = 48 married couples), measures of leisure and relationship satisfaction might have been confounded, and neither gender nor the interdependence of couple data was taken into account.

5. The Time-Mediation model

Leisure research and sociological studies have laid the foundation for linking mutual activities to relationship functioning and have identified sociodemographic factors that limit shared time. Based on the important existing literature presented in the preceding chapters, stress experienced outside the relationship is a promising candidate to enhance our understanding of processes involving shared time. For that reason, a new Time-Mediation model is proposed (see Figure 2) in the current thesis that integrates the interplay of the dimensions of shared time (see Chapter 2.3) into a broader stress theoretical framework. The central assertion of the model postulates that the negative association between external stress and relationship functioning is mediated by deteriorated shared time. The main rationale for the mediating role of shared time derives from the work of Bodenmann (e.g., Bodenmann, 2000; Randall & Bodenmann, 2009), who introduced the concept of less time spent together being one of four pathways to explain how external stress spills over into intimate relationships. Drawing from his stress-divorce model, but focusing on shared time and explicitly differentiating between different dimensions of shared time, the Time-Mediation model provides a theoretical basis for underlying *time* mechanisms involved in the stress spillover process. In this chapter, the integrative development of the Time-Mediation model will be outlined by briefly illustrating the rational for the links between the constructs.

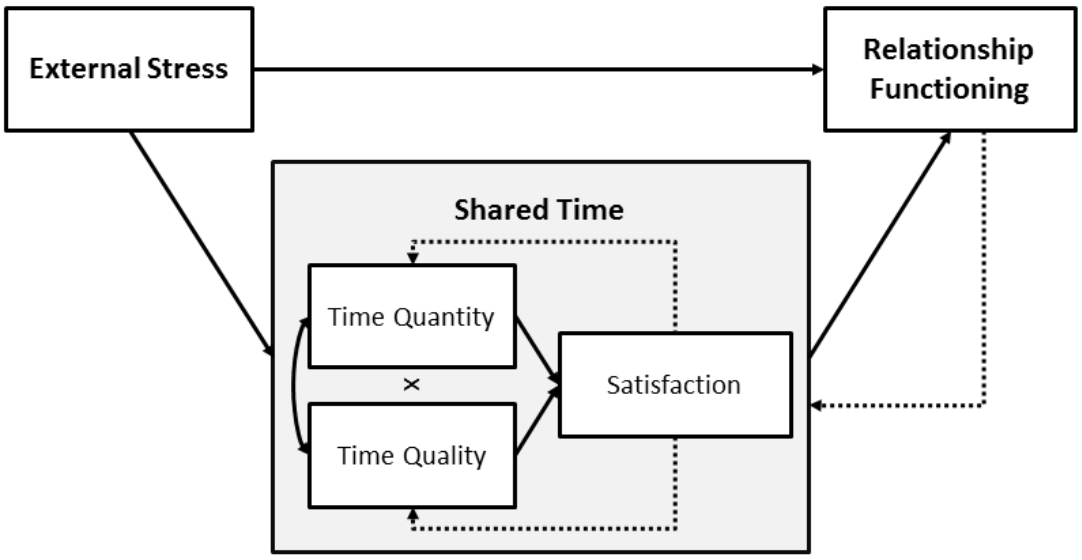


Figure 2. The Time - Mediation model.

5.1. Path: External stress and relationship functioning

Relying on ample evidence, the Time-Mediation model elaborates on from the finding that external stress negatively influences relationship functioning. In the last two decades, marital scientists interested in the field of stress research have proposed explanatory theories (e.g., Bodenmann et al., 2010; Karney & Bradbury, 1995) and gathered persuasive empirical support for the notion that external stress is negatively related to couples' relationship outcomes, such as intimacy, relationship quality, relationship stability (for review see Randall & Bodenmann, 2009). Couples who are exposed to a lot of external stress appear to be more likely to experience tensions and arguments within the relationship dyad and report less relationship quality (e.g., Bodenmann, Ledermann, & Bradbury, 2007).

A differentiated conceptualization of stress considering (a) the locus (internal versus external), (b) the duration (acute versus chronic), and (c) the intensity (major/macro versus minor/micro) of stress offers useful insights into the functioning of close relationships (see Randall & Bodenmann, 2009), since different types of stress are found to impact relationship

outcomes in distinct ways (e.g., Karney et al., 2005). For example, critical life events (external, acute, major) are often a challenge for relationships; still they may also have the potential to enhance couples' cohesion and we-ness on the long run (e.g., Gritz, Wellisch, Siau, & Wang, 1990; cf. Bradbury, Fincham, & Beach, 2000). On the contrary, external chronic minor stress has mainly been found to slowly undermine relationship satisfaction over time (e.g., Bodenmann, 2000; Karney et al., 2005). As the experience of stress is situation-specific and depends on cognitive appraisals and available resources (Lazarus & Folkman, 1984), external stress steaming from various domains (e.g., financial strain, work-related or health-related stress, daily hassles, etc.) may trigger different attributions in both partners (cf. Bodenmann, 1995; Neff & Karney, 2004). Furthermore, the recovery from external stress (e.g., Saxbe, Repetti, & Nishina, 2008) and how stress affects partners' marital behaviors (e.g, Schulz, Cowan, Pape Cowan, & Brennan, 2004; Story & Repetti, 2006) might differ between genders.

5.2. Path: External stress and shared time

The Time-Mediation model assumes that external stress negatively impairs relationship functioning not only directly, but also indirectly via shared time. Various family- and couple-related stress theories provide substantial support for this mediational link (e.g., Bodenmann, 2000; Conger et al., 1999; Karney & Bradbury, 1995). Based on findings that attest negative influences of external stress on an individual's affectivity (e.g., Conger et al., 2002) and communication quality in couples (e.g., Ledermann, Bodenmann, Rudaz, & Bradbury, 2010; Williamson, Karney, & Bradbury, 2013), the negative link between external stress and *time quality* seems unambiguous.

However, when considering *time quantity* and keeping the typology of stress in mind, the direction of the association appears less clear. Whereas withdrawal behavior as an individual response to stress might lead to less time quantity (Repetti, 1989), some partners might actually seek the other's presence to share the stressful experience and to receive

dyadic support and comfort. Additionally, the nature of stress may affect couples' quantity of shared time to a different extent, even within the same domain. For instance, work-related stress, such as a project deadline (external, acute, minor), might involve working longer hours in the office, leaving less time for family and spouse. Conversely, being unemployed (external, chronic, major) –a work-related stressor that is very stressful for those affected (cf. Reneflot & Evensen, 2014)– might actually increase the amount of couple's time spent together. The Time-Mediation model allows for testing differential impacts of various types of external stress on the three dimensions of shared time. As elaborated in Chapter 2.2, the interplay of time quantity and quality is assumed to contribute to increasing couples' satisfaction with shared time, but it is likely that there is also a direct association between external stress and partner's subjective evaluation of shared time.

5.3. Path: Shared time and relationship functioning

Acknowledging theory and findings from three decades of leisure research, it is without question that shared time together plays an important role for maintaining fullfilling intimate relationships. In the Time-Mediation model, all three dimensions of time are conceived as being positively associated with relationship functioning, assuming indirect pathways from time quality, time quantity and their interaction via partners' satisfaction with shared time to couples' relationship functioning. For example, when experiencing a lot of external stress, couples might spend less time together that is characterized by high quality and in consequence should be less satisfied with their shared time and their relationship in general. Even though time quality is proposed to yield a higher importance compared with time quantity, the plethora of studies reporting on a subjective experience of time scarcity or time stress suggest that the significance of the amount of time spent together should not be neglected in this context.

Most models on marital satisfaction (e.g., Lewis & Spanier, 1979; Miller, 1976; see also Chapter 3) suggest a direction of influence from spending time together to one's relationship

satisfaction. Testing this premise, Hill (1988) used a longitudinal design and found support for a causal link from leisure behavior to marital stability. In a recent study with 610 couples, Johnson and Anderson (2013) demonstrated that wife's as well as husband's perceptions of shared time predicted both partners' relationship satisfaction 18 months later. Conversely, testing causal paths in both directions, White (1983), revealed evidence that "marital interaction is more responsive to changes in happiness than happiness to changes in interaction patterns" (p. 518). In the main, her findings were replicated by Zuo (1992), who found, however, that the strength of the bidirectional impact varies over time. As Smith, Synder, Trull and Monsma (1988) pointed out, the directions of influence are likely to be reciprocal: Couples, who are highly satisfied with their relationship might be more motivated to spend time together, arrange for 'quality time' or interpret mutual relational experiences more favorably (Baldwin, 1992). Therefore, the Time-Mediation model accounts for reciprocal influences over time (as illustrated by the dotted line in Figure 2).

EMPIRICAL CONTRIBUTIONS

6. Research questions and study designs

The present thesis seeks to add to the understanding of mechanisms within intimate relationships that center on shared time. Albeit time budget studies and leisure research have provided detailed information on couples' allocation of time, many open questions remain unanswered as to how that relates to couple's satisfaction with shared time and their overall relationship functioning. Moreover, the influences of minor external stress on the dimensions of shared time have rarely been empirically tested, even though external stress is known to negatively affect intimate relationships in multiple ways (cf. Karney & Bradbury, 1995; Randall & Bodenmann, 2009).

Drawing on the arguments outlined in the chapters above, three empirical studies were conducted to fill in the existing gaps in the literature and empirically test (specific paths of) the Time-Mediation model (see Figure 3) proposed in Chapter 5. The use of diverse samples of couples (non-married, married, with and without children) allowed us to draw conclusions about a wide range of participants. Additionally, the inclusion of data from both partners (Study II) enabled us to statistically model couples' interdependence and test for actor and partner effects (cf. Cook & Kenny, 2005). According to Bernard (1972), two realities exist in every marriage, "his and hers", and both should be considered in research on couple relationships (cf. Thompson & Walker, 1989). Moreover, multi-methodological research designs (cross-sectional, daily dairy) were employed to not only investigate effects *between* persons (Study I), as has been done in most studies looking at couples' leisure time, but also to be able to examine effects *within* persons (Study II & Study III).

Study I

In the first study, described in Chapter 7, we aimed to disentangle the unique contribution of (a) quantity and (b) quality of couple time in explaining relationship satisfaction. A further goal of this study was to examine how dimensions of shared time (quantity and quality) may mediate the association between minor external stress and relationship satisfaction taking potential gender differences into account. Self-report data from 367 individuals in a committed heterosexual romantic relationship who participated in an online survey were analyzed with multigroup structural equation modeling (SEM).

Study II

The second study, outlined in Chapter 8, was undertaken to examine couples' satisfaction with shared time. We aimed to explore (a) how time quantity moderated by time quality is related to satisfaction with shared time, and (b) whether daily stress originating outside the relationship is negatively associated with the satisfaction with shared time by means of less time quantity and quality on a day-to-day basis. As parents are particularly at risk of experiencing time famine (Hamermesh, 2000; Roxburgh, 2002, 2006; Wight, Raley, & Bianchi, 2008; Witt & Goodale, 1981), we used data from two different parental samples (cross-sectional data: $n = 90$ couples; diary data: $n = 92$ mothers, see also Study III) employing Actor-Partner-Interdependence Models (APIM; Cook & Kenny, 2005) and mediated multilevel models (Bolger & Laurenceau, 2013) to address these questions.

Study III

In the third study set out in Chapter 9, we investigated within- and between-person associations between the amount of time women spent with their partners (time quantity) and their self-reported intimacy, taking the moderating effect of daily distress experienced during time shared together into account. To be able to differentiate between within- and between-person effects, we used the diary data that was gathered as part of a larger project focusing on

shared family time. In this project[8], 92 mother-child dyads had filled in a daily dairy across 14 consecutive days.

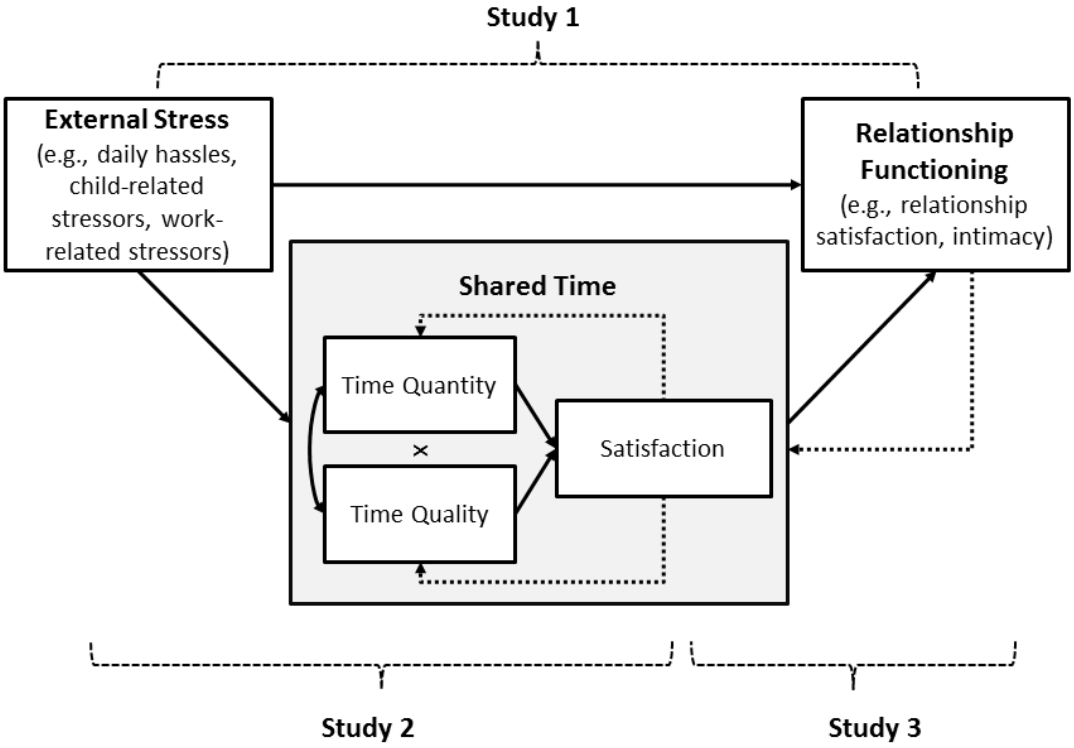


Figure 3. Graphical visualization of the objectives of the three empirical studies testing specific paths of the proposed Time-Mediation model.

[8] Analyzes with regard to family time will not be presented in the current thesis, which focuses on couples' time spent together only, but preliminary findings on family time are documented elsewhere (Conrad, 2013; Senn, 2014).

STUDY I

DELETERIOUS EFFECTS OF STRESS ON TIME SPENT WITH ONE'S PARTNER AND RELATIONSHIP SATISFACTION

7. Study I: Deleterious Effects of Stress on Time Spent with One's Partner and Relationship Satisfaction

Abstract

Romantic partners are exposed to multiple stressors that originate outside their relationship, which can spillover into the relationship impairing the time couples spend together (shared time)[9]. Theses deleterious effects may, however, be mediated by different dimensions of shared time, specifically quantity and quality. Self-report data from 367 individuals in a committed heterosexual romantic relationship were analyzed with multigroup path analytical mediation models. Results suggested that deleterious effects of external stressors on reported relationship satisfaction might be partially mediated by the quality, not quantity, of shared time. The quality of shared time was more associated with external stressors and contributed more to women's and men's relationship satisfaction compared to the quantity of shared time. Shared time seemed to be more important for women, as time quality explained 36% of variance in female relationship satisfaction, but only 12% in male relationship satisfaction. Implications for relationship researchers and clinicians are discussed.

Introduction

The amount of time couples spend together is not only crucial for relationship quality (Crawford et al., 2002; Holman & Epperson, 1984; Orthner, 1975), but is also an important maintenance strategy for relationship stability (Baxter & Dindia, 1990). Nonetheless, it is not sufficiently clear how much the mere *amount of time spent* together contributes to a satisfying relationship or whether it is the involvement in particular types of leisure (*time quality*) that solely predicts relational outcomes. Moreover, time stress has increased considerably in modern society (Levine, 1997) and individuals increasingly struggle between conflicting responsibilities in different domains of life (e.g., work demands, child care; Gershuny, 2000;

[9] For the purpose of consistency within this thesis, the wording has been changed in accordance to the definition given in Chapter 1. In the submitted manuscript the term 'couple time' has been used instead of the term 'shared time'.

Hochschild, 1997). So far, few theories or recent empirical psychology studies have addressed how stress experienced outside the relationship affects time shared with one's partner and subsequently individuals' relationship satisfaction.

Given the diversity in couples' life-styles, it is unlikely that relationship researchers and clinicians can determine a universal quantity of how much time is required for partners to spend together to live a happy and satisfying relationship. Opportunities and preferences of spending time together may vary on a variety of individual (e.g., gender; Crawford et al., 2002) and dyadic factors (e.g., distance apart; Crystal Jiang & Hancock, 2013). Additionally, these preferences are likely to change over the course of the relationship (e.g., Orthner, 1975), especially during times of stressful life transitions (e.g., Claxton & Perry-Jenkins, 2008). Empirical research has established that external stress spills over into the relationship causing negative effects on relational well-being (Randall & Bodenmann, 2009). Although stress affects all couples, couples with young children (e.g., Hamermesh, 2000; Roxburgh, 2002, 2006; Witt & Goodale, 1981) and dual-earner couples (Crouter & Crowley, 1990; Glorieux et al., 2011; Kingston & Nock, 1987; Weißbrodt, 2005) are particularly exposed to chronic external stressors (i.e. stressors that originate outside the relationship) in everyday life that shape family activities and routines. Indeed, more than two thirds of couples report a lack of time for their partner and family (Jurczyk & Heitkötter, 2012; Matos & Galinsky, 2010; Roxburgh, 2006).

The stress-divorce model proposed by Bodenmann et al. (2007) suggests that deteriorated shared time may be a pathway through which negative effects of external stress on relationship satisfaction can be explained. Given the importance of the time spent with one's romantic partner (Hill, 1988; Holman & Jacquart, 1988; Orthner, 1975), it is surprising that there is a dearth of literature that examines how the time spent with one's partner is affected by stress, and specifically what type of shared activities are affected. To address the current gaps in the literature, our study first examined the unique contribution of (a) *quantity*

and (b) *quality* of shared time in explaining relationship satisfaction. Second, we examined how dimensions of shared time (quantity and quality) may mediate the association between external stress and relationship satisfaction. Third, based on ample literature to suggest women are more affected by time pressures (e.g., Robinson & Godbey, 1998) and attach more importance to shared time (e.g., Rhyne, 1981), we were interested in examining gender differences regarding the associations between external stress, dimensions of shared time and relationship satisfaction.

Theoretical background

Time Dimensions and Relationship Satisfaction: Quantity vs. Quality

According to Flora and Segrin (1998) "without considering the quality of time spent together, joint leisure time cannot uniformly be guaranteed to enhance relationships" (p. 717). Early studies focused on *quantity* of time suggesting that simply spending a certain amount of time in joint activities is related to less marital disagreement (Hatch & Bulcroft, 2004), higher marital satisfaction (Kilbourne et al., 1990; Kingston & Nock, 1987; Miller, 1976; Orthner, 1975), higher marital happiness (Kirchler, 1988; White, 1983), or marital stability (Hill, 1988). Conversely, authors of more recent studies argued that rather than *how much*, it is whether couples spend their shared time in a satisfying way what matters most: They have detected only small effects –if any– of amount of shared time on relationship outcomes (Berg et al., 2001; Johnson et al., 2006).

During "times of potential stress and relational change" (Orthner, 1975, p. 100) highly interactive joint leisure activities provide a context for promoting communication and mutual self-disclosure, which are known to be essential for relationship maintenance (Riggio & Zimmerman, 1991). Aron and Aron (1986) also suggest that the *quality* of time should be taken into account, as just increasing the amount of time together may even have negative relational consequences triggering habituation processes, and leading to boredom with each

other's company. Experimental studies support this reasoning: Participation in activities which are self-expanding (e.g., by providing new resources or experiences), novel, exciting or arousing, had a positive effect on relationship quality over and above any effect of shared participation in more mundane activities (Aron et al., 2000; Reissman et al., 1993).

The Core and Balance Model of Family Leisure (Zabriskie & McCormick, 2001) proposes that families utilize two interrelated basic types of activities (core and balance) to meet opposing needs of stability and change. *Core activities* tend to require little planning and resources, are common and safe, spontaneous and informal; hence, they foster the feeling of closeness (e.g., eating dinner, going on walks together). *Balance activities* are conceptualized as being out of the ordinary, less frequent, more exciting, requiring more resources and planning; hence, they provide a context of novel experience (e.g., opera performance, outdoor recreation like camping). Zabriskie and McCormick (2001) argue that both types of activities are essential to successful functioning in a system. Johnson, Zabriskie and Hill (2006) identified participants' *satisfaction* with core activities as the only significant predictor for marital satisfaction when concurrently analyzing amount and quality of leisure time. This result should be interpreted with caution, however, as the sample size was small, measures of leisure and relationship satisfaction might have been confounded, and neither gender nor the interdependence of couple data was taken into account.

Effects of External Stress on Shared time

Intimate relationships are strongly characterized by intimacy and trust, placing a strong emphasis on shared time and mutual self-disclosure (Giddens, 1990). While the actual amount of family leisure time has increased during the last decades (Voorpostel et al., 2010), women and men report a shortage of shared time (Daly, 2001a; Matos & Galinsky, 2010). Although free time is nowadays generally more available in Western societies than in earlier centuries, time urgency or time stress has increased considerably (Levine, 1997). Individuals are exposed to daily external stressors in various domains and forms that shape everyday lives

(Repetti, Wang, & Saxbe, 2009). For example, because of economic globalization partners may have to synchronize conflicting work hours and "bring their work home" in order to meet higher job's demands (e.g., project deadlines) and account for family demands (e.g., getting the children to school, completing family errands, etc.) simultaneously (Gershuny, 2000; Hochschild, 1997). This becomes even more challenging when both partners are working (Clarkberg & Moen, 2001; Jacobs & Gerson, 2001; Lesnard, 2008). Thus, dual-earner couples spend about one hour less time together per day than couples with only one working partner (European Commission, 2004). Couples with (young) children may not spend less time with their partner per se (Huston & Vangelisti, 1995; Weißbrodt, 2005), but they spend a high proportion of their shared time multitasking completing household and children-oriented tasks rather than pursuing leisure and recreational activities (Huston et al., 1986). Therefore, couples with children have less time for meaningful conversations, intimate time together and romance (Lavee, McCubbin, & Olson, 1987; White et al., 1986), and experience high levels of time pressure and stress (Roxburgh, 2006).

Bodenmann and colleagues (2007) revealed that the accumulation of stress is a significant trigger for the decision to end close relationships, and thus may have far reaching consequences. Scholars in the field suggest that stress undermines close relationships by various destructive processes (e.g., Karney & Bradbury, 1995; Randall & Bodenmann, 2009), proposing that spending less time together as a couple may be one of them (Bodenmann, Charvoz, et al., 2007). Indeed, Holman and Jacquart (1988) have found that for wives - not husbands - reporting high versus low levels of stress changed the magnitude of the association between leisure variables and marital satisfaction. Holman and Jacquart suggested that the relationship between stress, leisure time, and marital satisfaction is a "fruitful area for further study" (1988, p. 76). Several earlier studies investigated leisure time during stages of (stressful) family life cycles (Kelly, 1975, 1980; Orthner, 1975; Witt & Goodale, 1981); however, since 1988 only a handful of studies have followed that suggestion. For example,

Claxton and Perry-Jenkins (2008) identified shared leisure time as integral to well-functioning marriages throughout the transition to parenthood, a critical period of major stress in couples' lives. Empirical support to which extent minor external stressors (e.g., daily hassles) affect different dimensions of shared time are still lacking, however.

Shared time Mediates External Stress and Relationship Satisfaction

According to the stress-divorce model (Bodenmann, et al., 2007), less time spent together as a couple is one of four key factors that mediates the negative spillover processes of stress on relationship outcomes: In periods of stress, couples may spend less time together, hence, participate in fewer joint leisure activities and share less thoughts and feelings (Bodenmann, Charvoz, et al., 2007). Consequently, romantic partners may experience mutual alienation, lower relationship satisfaction and a higher likelihood for divorce (see also Rogers & Amato, 1997). During stressful times, couples are likely to deviate from everyday routines, spend less time in pursuing joint activities they otherwise use as bonding recreation, and invest more time in task oriented, problem focused activities. Individual coping behaviors, like withdrawal, may lead to less self-disclosure between partners, creating an atmosphere of misunderstanding, tension and lead to more negative dyadic interactions (Repetti, 1989). Taken together, the quantity and quality of shared time are likely to be important for relational outcomes and may be impaired because of external stress. Based on the stress-divorce model, we argue that external stressors reduce the amount of time partners may spend together, which may also have detrimental effects on the quality of time spent together.

Gender Differences

Research has suggested that women and men differ in how shared time affects their relationship outcomes (Crawford et al., 2002; Gager & Sanchez, 2003; Holman & Jacquart, 1988, 1988; Kirchler, 1988; Marks, Huston, Johnson, & MacDermid, 2001; Smith et al., 1988) and perceptions of time spent together are known to correlate only moderately between

spouses (Claxton & Perry-Jenkins, 2008; Gager & Sanchez, 2003). For example, women reported stronger feelings of overall balance (of family roles) when they had more couple leisure time without the children present, whereas men felt better able to balance these roles when leisure was experienced as a family (Marks et al., 2001). Furthermore, women and men are differentially affected by and respond differently to stress (Tamres, Janicki, & Helgeson, 2002). In several studies, in the presence of stress women report more somatic symptoms and scored higher on emotion-focused coping styles, whereas men show more withdrawal and preferred problem-focused coping styles (Coyne & Smith, 1991; Gottlieb & Wagner, 1991; Matud, 2004). Given these gender differences, it is reasonable to assume gender may affect perceptions of shared time under stress.

The Current Study

Taken together, theory on stress in close relationships (e.g., Bodenmann, et al., 2007) suggests that one way how stress from outside the relationship spills over into the relationship is via means of different dimensions of shared time, but few studies have empirically examined this mechanism. The purpose of our study was three-fold. First, we examined how (a) time quantity and (b) time quality are associated with relationship satisfaction. Separately, both dimensions have been found to be related to marital satisfaction (Berg et al., 2001; Flora & Segrin, 1998; Holman & Jacquart, 1988; Kingston & Nock, 1987; Orthner, 1975), however, to the best of our knowledge, no study has reliably disentangled how much both dimensions contribute in the phase of stress. Based on empirical findings investigating patterns and types of joint leisure time (Flora & Segrin, 1998; Holman & Jacquart, 1988; Johnson et al., 2006; Kingston & Nock, 1987), we hypothesized:

H1. Time quality explains more shared variance in relationship satisfaction than the time quantity.

Second, we examined mediating mechanisms of shared time. Based on the stress-divorce model (Bodenmann, Charvoz, et al., 2007), and the notion that time dimensions

should be examined separately, we predicted that quality and quantity of shared time would mediate the negative relationship between stress and relationship satisfaction. More specifically, we tested the following hypotheses:

H2. There is an indirect effect of external stress on relationship satisfaction via shared time (H2a); external stress thereby being negatively associated with quantity and quality of shared time (H2b).

Third, given ample evidence that women experience more subjective time pressures than men do (Robinson & Godbey, 1998) and shared time is more important to the females' relationship satisfaction than it is to males' (Holman & Jacquart, 1988), we expected to find gender differences in the mediation model and hypothesized:

H3. Associations between external stress, dimensions of shared time and relationship satisfaction will be stronger for women than for men.

Method

Participants and Procedure

Participants for this study were recruited via online forums, university mailing lists, posters, flyers or handouts spread in community centers as part of a larger project. In total, 479 individuals from Germany (65.4%), Switzerland (25.1%), Austria (7%) and other European countries (2.5%) committed to a heterosexual relationship completed a battery of questionnaires online between September 2011 and April 2012. The sample was reduced to $N = 367$ ($n_{women\ (w)} = 271$; $n_{men\ (m)} = 96$), due to violations of selection criteria: (a) age younger than 18 years ($n = 8$), (b) relationship duration of less than 1 year ($n = 53$), (c) partner already participating in the study ($n = 51$). Participants were between 18 and 74 years old, men being significantly older than women ($M_w = 30.32$, $SD_w = 9.09$, $M_m = 34.34$ $SD_m = 11.58$; $t(138.609) = 3.084$, $p = .002$), and reported a mean relationship duration of 7.74 years ($SD_{total} = 8.36$, range = 1 – 43; $M_w = 7.17$, $SD_w = 7.25$, $M_m = 9.36$ $SD_m = 10.78$; $t(126.720) = 1.853$,

p = .066). Forty-two percent of women and 53% of men had a college or university degree. At time of assessment, more than 75% of the participants were cohabiting with their partners, thirty-two percent were married, and approximately 35% had at least one child. Fifty percent of the women and more than 70% of the men were part-time or full-time employed. Participants were not paid for their participation.

Measures

In addition to providing comprehensive demographic information (e.g., age, gender, ethnicity, education level, marital status, relationship duration, number of children, occupation, and employment status), participants completed the following measures:

Relationship satisfaction. Participants rated their relationship satisfaction using a German version of the *Couple Satisfaction Index* (CSI, Funk & Rogge, 2007). The measure consists of 4 items (e.g., *In general, how satisfied are you with your relationship?)* ranging from 1 to 6, higher values representing greater satisfaction. Internal consistency reliability was high for both women (α = .95) and men (α = .94).

External stress. Individual's external stress load was assessed by using a short version of the *Multidimensional Stress Questionnaire for Couples* (MSP-Q, Bodenmann, Schaer, & Gmelch, 2008a). Participants rated for the last 7 days (acute) and for the last 12 months (chronic) whether they had experienced relationship unrelated micro stress (*e.g., daily hassles, quarrels with neighbors, job related stress*) or relationship unrelated macro stress (*e.g., death within family of origin, unemployment, change of residence*). Categories ranged from 0 = *not at all* to 3 = *a lot*. The items for chronic and acute stress were combined to represent the total external stress load, higher scores indicating higher levels of stress. Even though internal consistency cannot necessarily be assumed for different types of stress, the scale was moderately reliable with α = .67 for women and α = .72 for men, respectively.

Time quantity - amount of time spent together (AT). Participants were asked to estimate how many hours they spend together with their spouse throughout an average week separately

for each day, based on the prior week. Two distinct measures for weekdays and weekends were calculated. We averaged the time spent during weekdays (Monday through Friday), and aggregated the time spent during the weekends (Saturday and Sunday). On average, participants spent approximately 4.25 hours (*SD* = 3.17) together on weekdays, and 21.42 hours (*SD* = 7.73) together on the weekends.

Time quality (TQ). Time quality was operationalized by assessing the weekly frequency of five couple activities (e.g., *eating meals together, going out, sexual activities)* that had previously been identified to enhance intimacy and we-ness from a set of shared core and balance activities in a pilot study with 89 couples (Austerschmidt, 2014). Participants reported for each activity (e.g., *eating meals together, sexual activities, going out)* how often they pursued them together with their partner on a weekly basis from 1 = *never* to 5 = *very often.* On average, women and men reported a mean frequency of quality time activities of *M* = 3.76 (*SD* = 0.58) and did not differ significantly in their reports.

Statistical Analysis

Path analytical multigroup mediation models (see Figure 4) were used to test whether dimensions of shared time mediated the association between external stress and relationship satisfaction. Mediation models allow associations to be decomposed into components that reveal possible mechanisms. More specifically in this study, mediation is said to occur when the effect of external stress on relationship satisfaction is explained by a significant indirect effect via shared time (H2). The multigroup approach allows to estimate model parameters and to test for differences of predefined groups simultaneously (H3), as one model per group (women versus men) is calculated at the same time. We tested hypotheses H1 by investigating how much variance one dimension of shared time explains above and beyond the other variables in the model. To accomplish this, we utilized the best fitting model and removed one mediator at a time. As all other variables were still considered in the model, the decrease

in the determination coefficient indicated the incremental impact of the removed shared time dimension on relationship satisfaction.

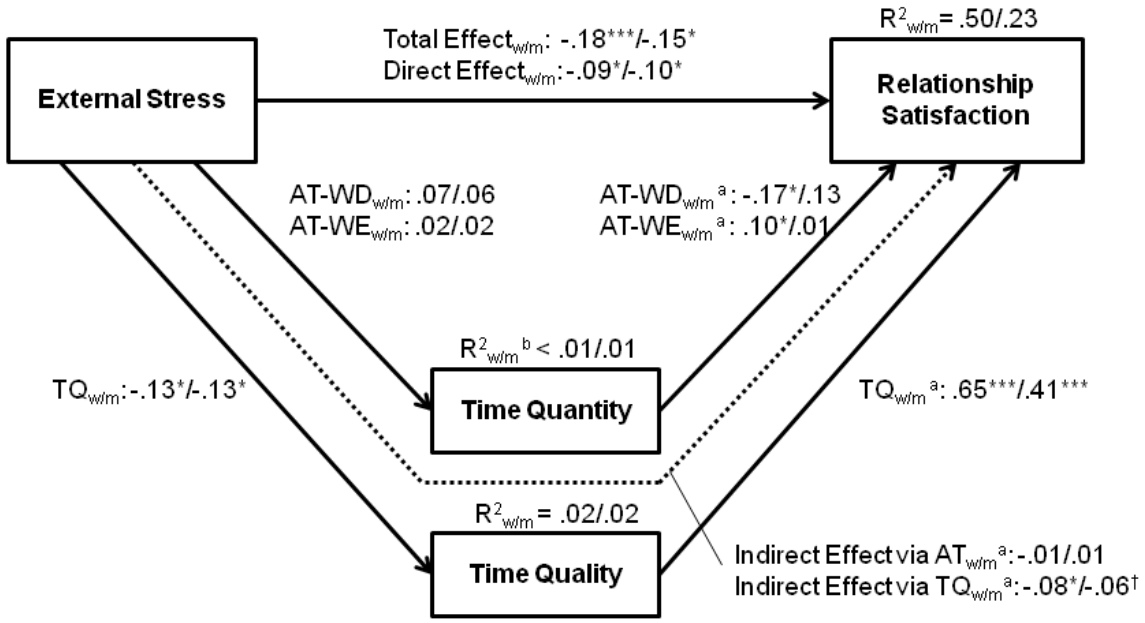


Figure 4. Shared time mediating the negative association between external stress and relationship satisfaction.

Note. Depicted are standardized results of the multigroup (w=women/ m=men) mediation model accounted for having children, relationship duration and weekly working hours; AT = amount of time, TQ = time quality, WD = weekday, WE = weekend.
[a] coefficients vary significantly between genders.
[b] for amount of time on weekday and weekend.
$^{\dagger}p < .10$. $*p < .05$. $**p < .01$. $***p < .001$.

Control variables. There is considerable empirical evidence that leisure activity patterns vary by a variety of socio-demographic factors (for an overview, see Holman & Epperson, 1984). Therefore, we included weekly working hours, presence of at least one child under 18 years old living in the household (dummy coded), and relationship duration to control for potential confounds in all models. Effects of control variables were not allowed to vary between genders. In order to simplify the interpretation of effects and to eliminate nonessential multicollinearity (Aiken & West, 1991), all numerical predictors were grand mean centered.

Analyses were conducted using Mplus 7 (Muthén & Muthén, 1998 - 2012). Following recommendations of Shrout and Bolger (2002), the full information maximum likelihood estimation procedure (FIML) with bootstrap option (500 samples) implemented in Mplus was used to estimate model parameters and corresponding standard errors; analyses conducted with complete data (n_{min} = 312) eventuate in essentially identical results.

Results

Means, standard deviations and bivariate correlations for women and men among all study variables are presented in Table 1. Consistent with most studies (e.g. Ledermann et al., 2010), participants reported relatively high levels of relationship satisfaction and rather low levels of external stress, with women reporting slightly more external stress than men. In line with European labor market statistics (Eurostat, 2012), gender differences were found in workload towards women working fewer hours per week in a paid job. Women and men did not differ in any other variables.

As a prerequisite to address any of our hypotheses, we first tested a series of models containing all mediator variables concurrently. Starting with the saturated model allowing all parameters to vary freely between women and men, we gradually restricted effects of direct paths to be equal across gender to identify the most parsimony fitting model. Covariation between predictor variables was permitted in all models. To determine the best fitting model, we relied on the following goodness-of-fit criteria (see Hu & Bentler, 1999): (a) a non-significant χ^2, (b) a Comparative Fit Index (CFI) greater than .95, (c) a Root Mean Square Error of Approximation (RMSEA) of less than .05, (d) the Standardized Root Mean Square Residual (SRMR), and (e) a significant $\Delta\chi^2$ in comparison with the subsequent model. A restriction of the direct paths of the mediators on relationship satisfaction to be equal across gender in comparison to letting them vary freely resulted in a significant $\Delta\chi^2$ *(*Δdf, $p < .05$*)*. This indicates a significant decrease in model fit for the more restricted model, suggesting that associations between those variables are not the same for women and men. At last, the

model with freely varying paths for the mediators on RS and equalized paths for all other associations was the most parsimony fitting model. All of the goodness-of-fit measures were within good ranges (χ^2 = 5.075, *df* = 7, *p* = .651, CFI = 1.000, RMSEA = .000, SRMR = .023; see Kline, 2011).

Hypotheses 1: Incremental Effects of AT and TQ on Relationship Satisfaction

In general, dimensions of shared time were more relevant for women; all predictors (including the control variables) in the model accounted for 50% of the variance of women's relationship satisfaction, but only for 23% of the variance of men's relationship satisfaction. In accord with our hypotheses, time quality explained a greater share of additional variance in relationship satisfaction than time quantity. For women, 37% of additional variance was explained by time quality, whereas only 2% was explained by time quantity above and beyond all other predictors in the model. For men, time quality explained 12% and time quantity explained 1% of additional variance in relationship satisfaction.

Hypotheses 2a and 2b: Mediating Mechanisms of Shared time

The second objective of this study was to test for mediating mechanisms of shared time (H2a, see Figure 4). We found a significant total indirect effect via time quality for women (*B* = -.09, *p* = .018), substantially reducing the negative association between external stress and relationship satisfaction. For men, the indirect effect via time quality was marginally significant (*B* = -.05, *p* = .078). None of the indirect effects of time quantity reached statistical significance. The remaining direct effect of stress on relationship satisfaction was still significant for both, women and men, indicating incomplete mediation.

Our hypothesis (H2b) that stress is negatively associated with all dimensions of shared time was only partially confirmed. External stress was significantly associated with less time quality for women and men, but path coefficients of external stress on the amount of time on weekdays as well as weekends were –even though non-significantly– positive.

Table 1.

Descriptive statistics and pairwise correlations among study variables (N = 367)

	Descriptives					Bivariate correlations						
	Women (n = 271)		Men (*n* = 96)									
Variables	*M*	*SD*	*M*	*SD*	*t*	1	2	3	4	5	6	7
1. Relationship duration[a]	7.17	7.25	9.36	10.78	1.854		-.05	.07	-.03	.14	-.12	-.08
2. Relationship satisfaction	4.96	1.00	5.14	0.82	1.635	-.05		-.23*	.17	.08	.45***	.01
3. External stress	1.16	0.67	1.00	0.62	-1.995*	-.08	-.17**		-.11	-.04	-.24*	-.19†
4. AT - hours/weekday	4.32	4.32	4.07	3.18	-0.643	.15*	-.07	.11†		.46***	.10	.24*
5. AT - hours/weekend	21.41	7.74	21.43	7.73	0.023	.06	.19**	.04	.41***		.04	.05
6. Time Quality	3.78	0.59	3.70	0.55	-1.184	-.04	.68***	-.09	.12†	.29***		-.07
7. Working hours (per week)	22.86	16.78	31.24	15.75	4.417***	.08	-.03	-.25***	-.16*	.05	-.07	

Note: Correlations under the diagonal are women's, above the diagonal are men's. AT = amount of shared time.
[a] measured in years,
†*p < .10. *p < .05. **p <.01. ***p < .001.*

Hypothesis 3: Gender Differences

As mentioned above, associations between external stress and dimensions of shared time did not differ between women and men; however, we did find significant differences between dimensions of shared time and relationship satisfaction between genders. Thus, our hypothesis H3 was partly supported. Model fit significantly decreased when path coefficients of shared time were restricted to be equal across gender: AT and TQ were stronger predictors of relationship satisfaction for women than for men. When the statistical impact of all other variables was controlled, men's path coefficients were non-significant (AT) or substantially smaller in magnitude (TQ) in comparison to women's.

Surprisingly, when controlling for all other predictors, we detected the expected positive relation of AT and relationship satisfaction only for women on the weekends (B = .10, p = .046). During the week, assuming an average level of time quality, one hour more time together was even negatively associated with female relationship satisfaction (B = -.17, p = .019; see Figure 4).

Discussion

The purpose of this study was to differentiate the ways in which time (both quantity and quality) uniquely contribute to couples' relationship satisfaction. To our knowledge, this is the first study to examine whether shared time mediates the relationship between deleterious effects of external stress and relationship satisfaction between genders. Overall, our results emphasize the necessity of distinguishing the quantity of time from the quality of time couples spend together, as these two variables were differently associated with external stressors and contributed to women's and men's relationship satisfaction to different degrees. Furthermore, empirical findings provided preliminary support for the notion that negative spillover effects between external stressors and relationship satisfaction are mediated via the quality of shared time rather than the time quantity. Overall, replicating results from Smith et

al. (1988), who reported similar gender differences for leisure time and marital distress, shared time appeared to be twice as important for women's as for men's relationship satisfaction.

Quality Versus Quantity

Primacy of quality. Confirming prior findings (e.g., Aron & Aron, 1986; Berg et al., 2001; Johnson et al., 2006), our results suggest that not the mere quantity of time spent together is a key factor for women's and men's relationship satisfaction, but rather *how* couples spent time together. The quality, not quantity, of time spent together partially mediated the deleterious effects of external stress on relationship satisfaction. Women and men that experienced more external stress engaged in fewer shared 'quality time' activities and were hence less satisfied with their relationship. Couples adapt the amount of shared time, their leisure preferences and behaviors according to circumstances of life (Claxton & Perry-Jenkins, 2008; Stafford & Merolla, 2007). With regard to the diversity of our sample, external stressors experienced by one partner seemed to impair the quality of shared time irrespective of the couple's life-stage.

Quantity: Weekday versus weekend. Spending more time together during the week or on the weekend was not associated with higher relationship satisfaction for men. For women, we found the expected positive association for weekends only. For weekdays, effects of time quantity were even negatively related to female relationship satisfaction, when holding time quality constant at a mean level. Those findings support Holman and Jacquart's (1988) conclusion that spending time together without considering the quality "has at best no association with, and at worst a negative association with, marital satisfaction" (p.76).

Weekends are often reserved for recreational shared time, mutually enjoyable for both partners, whereas on a weekday that is not necessarily the case. During the week, 'wife present' usually means leisure time for husband, but 'husband present' does not necessarily imply shared leisure time for women. Women still do at least twice as much daily routine

housework (Coltrane, 2000), enjoy about 0.5 hours less free time each day than men (Mattingly & Sayer, 2006), and feel "annoyed" (Brandstätter, 1983), when they have to work (e.g., spending time on household tasks) while the husband relaxes (Hochschild & Machung, 2003). Rather than increasing the amount of time with their spouses, women are more likely to benefit from and to wish for improved quality of shared time (see also Roxburgh, 2006).

Time Quantity Not Negatively Affected by External Stress

Interestingly, neither the time quantity during the week nor on the weekend was negatively associated with external stress. In contrast to our assumption, highly stressed participants did not report to spend less time with their partners and associations did not differ for gender, although it is known that women (a) experience more subjective time pressure (Robinson & Godbey, 1998) and (b) utilize different coping strategies (Tamres et al., 2002) compared to men. One possible explanation for this finding could be that in a functional romantic relationship, men as well as women may actively seek their partner's support during periods of high external stress. The skill of supporting the partner in stressful times and coping with external stressors dyadically is known to be one of the most important predictors of relationship satisfaction (Bodenmann, 1997). Further research is necessary to shed light on whether competencies like dyadic coping or communication skills may moderate the effect of stress on and the use of shared time.

Limitations and Future Directions

Several limitations need to be taken into consideration when interpreting the current findings. First, study findings are based on individuals that are currently in a romantic relationship and not couples in a romantic relationship; therefore, questions related to the interdependence between partners' responses could not be analyzed. Further studies should utilize dyadic data to allow for more profound conclusions about 'his and her view' and their interdependencies. Not only may time perceptions and preferences influence partners

mutually, it is also very likely that couples prefer different time patterns throughout the course of their relationship. Couples in the 'honeymoon' stage may desire to spend every spare minute with the beloved one, but this changes over the course of the relationship; especially during times of major transitions (e.g., transition to parenthood), potentially altering the importance of shared time for couple functioning. Second, data were collected using self-reports, which are subject to personal bias. Future research should also include more objective measures taken during real-time. For example, the use of ambulatory assessment like electronic diaries (e.g., EAR, Mehl & Holleran, 2007) would allow researchers to compare intra- and inter-individual influences of shared time on relationship outcomes on stressful days with days when partners experience less external stress. Third, the composition of the sample limits the generalizability of results. Participants in this study were fairly satisfied with their relationship and mainly from the upper-middle class, under representing unhappy and lower class couples with less financial resources, who may spend and perceive shared time very differently. Forth, although statistical analyses of association can provide evidence of mediation pathways (see Shrout & Bolger, 2002), the models tested cannot establish causal links. Due to the cross-sectional design of our study, even though differences in associations and explanations of variances can be interpreted reported statistical paths cannot be interpreted as causal paths. To adequately test for causal relation, further studies should gather longitudinal data from both partners (see recommendation above) to specifically address causal links between external stress, shared time, and relationship satisfaction. Lastly, we did not account for the various ways in which partners may have been communicating or spending time with one another. For example, even though partners may not have been physically spending time with one another, they may have communicated via phone calls, text messages or e-mail throughout the day, which could buffer or intensify negative spillover effects of external stress (e.g., work stress) on relationship satisfaction. Ideally, further studies

should control for the use of other communication devices when analyzing mechanism involving the amount of shared time.

Conclusion

This study presents the first empirical evidence to show that quality time spent between partners may mediate the deleterious effects external stress has on relationship satisfaction. Disentangling dimensions of shared time and analyzing the unique impact of external stress on its different dimensions is a fruitful approach to enhance our understanding of deleterious spillover mechanisms.

Future research discriminating between different sources of external stress, as well as examining how external stress and dimensions of shared time is associated with other important factors of couple functioning (e.g., dyadic coping or effective parenting) may reveal important knowledge on detrimental spillover processes. Work related stressors, such as working long hours, are likely to have a different influence on time dimensions than daily hassles (e.g., noisy neighborhood) and may call for other preventive measures to reduce negative spillover effects. Strengthening the skill to cope with external stressors together as a couple –using even little time together effectively to support each other– may be a promising avenue to help couples dealing with increasing rates of time pressure and external stress. Empirical evidence provides support for the efficacy of coping-oriented prevention programs for couples (e.g., Couples Coping Enhancement Training, CCET; Bodenmann & Shantinath, 2004; TOGETHER; Falconier, 2014).

When working with couples, counselors and therapists should bear in mind that just enhancing the quantity of shared time together without considering the time quality may have negative effects, in particular on women's relationship satisfaction. When working with couples experiencing high levels of chronic external stress, establishing habitual moments of 'quality time' may be a fruitful way to preserve partners' relationship satisfaction from decreasing.

STUDY II

PREDICTING SATISFACTION WITH PARENTS' SHARED TIME: THE INTERPLAY OF TIME QUANTITY, SELF-DISCLOSURE AND EXTERNAL STRESS

8. Study II: Predicting Satisfaction with Parents' Shared Time: The Interplay of Time Quantity, Self-Disclosure and External Stress

Abstract

Although research has shown that being satisfied with shared time together as a couple is predictive for the quality of intimate relationships, less is known about what specifically contributes to partners' satisfaction with shared time. We used data from two parental samples (study A, *n* = 90 couples, study B, *n* = 92 mothers) to test the hypotheses (a) that the amount of time spent together is more strongly related to satisfaction with shared time when self-disclosure during shared time is high and (b) that the negative association between external stress and satisfaction with shared time at a daily level is mediated by less time quantity and less self-disclosure. In both studies, time quantity and self-disclosure were positively associated with parents' satisfaction with shared time. Surprisingly, the amount of time was less strongly associated with satisfaction with shared time when perceived levels of self-disclosure were high. External stress was negatively associated with mothers' satisfaction with shared time via less time quantity and less self-disclosure, extending our understanding of spillover mechanisms of stress.

Introduction

Recent research identified partners' satisfaction with (leisure) time spent together as a couple as a prominent predictor for relationship satisfaction (Berg et al., 2001; Johnson et al., 2006). However, up to now, only little is known what determines whether partners are satisfied with the time they spent together as a couple (i.e. shared time).

Drawing from theories and empirical findings from leisure research and stress research, the amount of shared time (i.e. time quantity), the level of self-disclosure during time spent together, as well as daily stress originating outside the relationship (i.e. external stress) are

promising candidates to predict partners' satisfaction with shared time. When couples spend more time in highly interactive joint activities they also report higher satisfaction with the marriage (for reviews see Holman & Epperson, 1984; Orthner & Mancini, 1990). At the same time, the feeling of being permanently stressed has increased considerably in modern society (Levine, 1997) spilling over into the intimate relationship and affecting interactions and perceptions (e.g., Karney & Bradbury, 1995; Randall & Bodenmann, 2009). For example, parents in particular struggle to handle the conflicting responsibilities in their lives (e.g., work demands, child care), making shared intimate moments with their partner harder to come by (Hamermesh, 2000; Lenz, 2009; Roxburgh, 2002, 2006; Witt & Goodale, 1981). It is in this context, that we conducted two studies with parental samples to investigate (1) how the amount of shared time moderated by the intensity of communication (self-disclosure) during that time is related to the fathers' and mothers' satisfaction with shared time (study A, n = 90 couples, cross-sectional) and (2) to what extent the negative association between external stress (e.g., work- or child-related) and satisfaction with shared time is mediated by less time quantity and less self-disclosure over the course of 14 days (study B, n = 92 mothers, daily diary; see Figure 5).

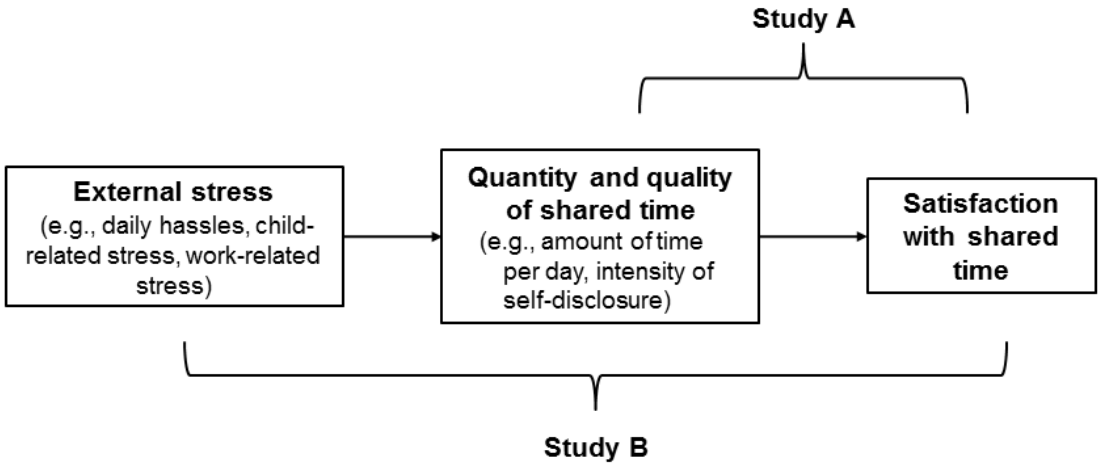


Figure 5. General conceptual design of the present investigation and the proposed mediation model.

Satisfaction with shared time

Prior research mainly focused on couples' satisfaction with (joint) leisure time (Beard & Ragheb, 1980; Berg et al., 2001; Johnson et al., 2006). However, not only leisure time is likely to matter for partners' functioning. Time-use studies show that daily interactions that happen 'en passant' (e.g., while cleaning dishes or on the way to the grocery store) and are unrelated to recreation or leisure constitute a fair proportion of the time a couple spends together (e.g., Glorieux et al., 2011). Therefore, following Glorieux et al., (2011), our research interest was in examining couples' "together time" rather than leisure time only. To our knowledge no study has yet set the focus on identifying what contributes to couples' satisfaction with shared time.

In this study, we define satisfaction with shared time as positive perception or feeling that partners form or gain as a result of time spent with his/her spouse. It reflects a subjective emotional-cognitive assessment representing the degree to which a partner is presently content with the sum of all his/her shared couple experiences. Regardless of current life circumstances or relationship stages, the individual perception of shared time as worthwhile and a mutually enjoyable experience is likely to be highly relevant for intimate relationships. However, recent studies reveal that between 40 to 75% of the respondents are unsatisfied with the time they spend with their spouses (Daly, 2001a; Jurczyk & Heitkötter, 2012; Matos & Galinsky, 2010; Roxburgh, 2006). Analyzing open-ended responses, Roxbough (2006) concluded that men primarily wanted to increase the quantity of time with their spouses and children, whereas women wanted to improve the quality of family time more often. Marks, Huston, Johnson and MacDermid (2001) could show that women reported stronger feelings of overall role balance when they had more time together with the partner without the children present.

Generally, shared time preferences may be different for each partner (Crawford et al., 2002) and even perceptions of the quantity of time spent together appear to be only

moderately correlated between partners. In a study with 147 dual-earner couples conducted by Claxton and Perry- Jenkins (2008), wives reported significantly fewer shared leisure activities than husbands. Incongruent time preferences as well as time perceptions may potentially alter one or both partners' satisfaction with shared time. These results suggest that it is important to take both partners' perspectives into consideration when attempting to understand the mechanisms involved in shared time.

Time quantity versus quality: The role of communication

Early lines of research focusing on leisure involvement suggested that simply spending a certain amount of time in joint activities is related to marital functioning (e.g., Kilbourne et al., 1990; Kingston & Nock, 1987; Kirchler, 1988; Miller, 1976; Orden & Bradburn, 1968; White, 1983). Conversely, authors of more recent research argue that "without considering the quality of time spent together, joint leisure time cannot uniformly be guaranteed to enhance relationships" (Flora & Segrin, 1998, p. 717). Research initiated by Orthner (1975) provided consistent findings across different cultures that not all kinds of joint activities are beneficial for relationships (for reviews see Holman & Epperson, 1984; Orthner & Mancini, 1990) and that communication holds a "facilitating" role (Olson, 1993). Several studies reported substantially stronger associations with relationship satisfaction for joint activities that were characterized by a high level of communication and self-disclosure (Flora & Segrin, 1998; Holman & Jacquart, 1988; Orthner, 1975; Palisi, 1984). Joint activities allowing for only low or moderate communication may represent a false front, suggesting togetherness when it does not necessarily exists. Therefore, Holman and Jacquart (1988) concluded that "simply 'doing things together' without a high level of perceived communication has at best no relationship to marital satisfaction" (p. 73). Too much time together may even lead to boredom and be negatively associated with relationship satisfaction (Aron et al., 2000; Reissman et al., 1993). Drawing on these findings from leisure research, we argue that partners' satisfaction with shared time is likely to be contingent on the quantity of time they

spend together but also –and probably to a larger extent– on the level of perceived communication during shared time.

Influence of external stress on shared time

Although couples spend more free time together nowadays than in earlier centuries (Voorpostel et al., 2010), time urgency or time stress has increased considerably (Levine, 1997). External stress (e.g., work-related stress, noisy neighborhood, etc.) shape couples' everyday lives, spill over into the couple relationship (Repetti et al., 2009) and are likely to alter the satisfaction with shared time. Even though external stress affects every marriage (e.g., Karney & Bradbury, 1995; Randall & Bodenmann, 2009), this is particularly true for dual-earner couples with children (Hamermesh, 2000; Roxburgh, 2002, 2006; Wight et al., 2008; Witt & Goodale, 1981). Parents spend time together as a family rather than dyadically as a couple (Lenz, 2009; Weißbrodt, 2005) and use up a high proportion of shared time for multi-tasking (e.g., preparing dinner, monitoring children's homework etc.) rather than enjoying recreational activities and intimate togetherness (Huston et al., 1986). Additionally, meaningful conversations are more challenging in the constant presence of children (Lavee et al., 1996; White et al., 1986).

Prominent models of marriage (e.g., vulnerability-stress-adaptation model of marriage) include the exchange of behaviors between partners as a component in how stress affects relationship satisfaction (Karney & Bradbury, 1995). In the stress-divorce model, Bodenmann and colleagues (2007) explicitly introduce less time together as one of four key factors that mediate the link between chronic external stress and increasing mutual alienation in couples, ultimately leading to higher marital dissatisfaction and a higher likelihood for divorce. Due to external stress and time pressure, couples participate in fewer joint activities, show more withdrawal (Repetti, 1989) and disclose less thoughts and feelings (Bodenmann, Charvoz, et al., 2007; Lenz, 2009). Self-disclosure, however, is an important relationship maintenance strategy (Riggio & Zimmerman, 1991) and key for the development of intimacy in an

interpersonal relationship (Reis & Shaver, 1988). Consequently, partners may experience and evaluate shared time as less intimate and rewarding under stress.

In a cross-sectional study by Milek, et al. (submitted), deleterious effects of external stress on reported female and male relationship satisfaction were partially mediated by decreasing quality of shared time. Surprisingly, the quantity of shared time was not associated with external stress: Highly stressed men and women did not report spending less time with their partners than non-stressed men and women. Cross-sectional comparisons may, however, fail to reveal an association between shared time and stress because of the subjective nature of stress (Lazarus & Folkman, 1984) and the considerable differences between couples in how often they see each other (e.g., depending on circumstances and the stage of a relationship couples spend varying amounts of time together; Huston et al., 1986; Orthner, 1975). To the best of our knowledge, no study has yet addressed how external stress is associated with shared time at a within-person level.

The present research

We conducted the present research to explore, firstly, how time quantity moderated by the intensity of self-disclosure is associated with satisfaction with shared time (study A) and secondly, whether daily stress originating outside the relationship impairs the satisfaction with shared time intraindividually by means of less time quantity and self-disclosure (study B). To address these questions we ran two studies focusing on parents as they are the target group that is affected most by scarcity of shared time (Hamermesh, 2000; Roxburgh, 2002, 2006; Wight et al., 2008; Witt & Goodale, 1981).

In study A, 180 mothers and fathers (90 couples) filled in an online questionnaire and reported separately how they perceived the time they spent together as a couple. We expected a positive association between satisfaction with shared time and time quantity, as well as one's own and partner's self-disclosure, respectively. As we cannot rule out an inverted u-shaped pattern for time quantity with regard to the inconclusive findings from leisure research (Aron

et al., 2000; Flora & Segrin, 1998; Gager & Sanchez, 2003; Holman & Epperson, 1984; Kingston & Nock, 1987; Miller, 1976; Orthner, 1975; Reissman et al., 1993), we also tested for curvilinear associations. Moreover, we predicted that mothers' and fathers' satisfaction with shared time will be more positively associated with time quantity when they themselves report higher levels of self-disclosure (moderated actor effects), and potentially also when their partners' report higher levels of self-disclosure (moderated partner effects) during shared time.

In study B, 92 mothers completed a daily diary during 14 consecutive days. We focused on mothers only in this part of the investigation, as women are particularly at risk for experiencing high levels of time pressure and external strain (Godbey & Graefe, 1993; Robinson & Godbey, 1998; Roxburgh, 2002) and still do the major part of child rearing and household labor (Coltrane, 2000). This makes it harder for them to perceive shared time as enjoyable as men do (Larson, Gillman, & Richards, 1997). First, controlling for interindividual differences, we concentrated on within-person processes and aimed to replicate the results of study A. Second, we compared intraindividual effects of time quantity and self-disclosure on mothers' satisfaction with shared time on stressful days with days when they experienced less external stress to improve our understanding of ongoing processes. On days with more external stress than usual, we expected the mothers to spend less time with their partners and exercise lower levels of self-disclosure, resulting in less satisfaction with shared time. We differentiated between sources of external stress (daily hassles, child-related and work-related stress), and hence were able to look at converging evidence across contexts. Although we expected similar mediational patterns for the three types of stress, we thought it nonetheless possible that differences could emerge. For example, work-related stress (e.g., important project deadline) versus child-related stress (e.g., juvenile behavioral problems) might be differently associated with the daily amount of time couples spent together or the intensity of mutual self-disclosure, respectively.

Study A

Method

Participants and procedure

As part of a larger project, a community sample was recruited via posters, flyers and handouts disseminated in community centers and local sports clubs in North Rhine-Westphalia, Germany. In total, 195 German-speaking mothers and fathers committed to a heterosexual relationship completed a series of questionnaires online. Fifteen participants were excluded due to violations of the following inclusion criteria: (a) partner also participating in the study (n = 13), (b) having at least one child (n = 1 couple). Eligible mothers and fathers (90 couples) were between 39 and 68 years old, mothers being significantly younger than fathers ($M_{mothers}$ = 50.78, $SD_{mothers}$ = 3.82, $M_{fathers}$ = 52.96, $SD_{fathers}$ = 5.16; paired $t(89) = 5.068$, $p < .001$). Mean relationship duration was 25 years (SD = 9.96, range = 1 – 41) and 87% of the couples were married. Five couples were living in separate apartments. Couples had up to 5 children (M = 2.26, SD = 0.94) between 15 and 32 years of age (M = 21.58 years, SD = 3.29). Seventy-five mothers and 67 fathers had a lower or upper track high school degree, 14 mothers and 23 fathers had graduated from college or university, mean household salary adequately representing the lower, middle and upper-class of the population. At time of assessment, the majority of mothers (90%) and fathers (95%) were employed, with a weekly work load of M = 25.6 hours (SD = 13.6) for mothers, and M = 38.0 hours (SD = 10.0) for fathers (paired $t(88) = 8.012$, $p < .001$). Participants were not rewarded financially in the present study. All study procedures were approved by the local university ethics committee.[10]

[10] In this study, we also applied an exploratory approach to identify different patterns of spousal time by analyzing the amount of time couples spend together (time quantity) and the frequency of their in engagement in we-ness enhancing activities (time quality) using cluster analysis. Results were not included in the submitted paper but are presented in the Appendix of the current thesis.

Measures

Satisfaction with shared time. Parents rated the satisfaction with their shared time by responding to the single item "*How satisfied are you with the time you spend together as a couple?*" on a 4-point Likert scale ranging from 1 = *not at all* to 4 = *very much*.

Time quantity. Parents were asked to estimate how many hours they spend together with their spouse during an average week separately for each day, based on the prior week. As partners seemed to agree less on how many hours they spent together during the weekend (estimates were correlated by $r = .58$ only[11]), we calculated an overall measure for the more reliable reports ($r = .71$) of time spent together during weekdays by averaging the mothers' and fathers' responses (Monday through Friday). On average, couples reported to spend approximately 4.84 hours ($SD = 2.62$) on weekdays with each other.

Self-disclosure. The following single item measure was used to assess self-disclosure during shared time (taking the preceding week as reference): *"When we spend time together, we talk about the day and share our thoughts"*. The item was rated from 1 = *never* to 5 = *very often*, higher values indicating more self-disclosure towards the partner.

Statistical analysis

We used the Actor Partner Interdependence Model (APIM) recommend for analyzing dyadic data (Kenny, 1996; Kenny & Cook, 1999; Ledermann et al., 2010). In this type of model, effects of various predictors on mothers' and fathers' satisfaction with shared time can be estimated simultaneously, taking the interdependencies of couple members into account. We tested a series of models, starting with the saturated model, allowing all parameters to vary freely between mothers and fathers. Gradually, we restricted effects of paths to be equal across gender to identify the most parsimonious fitting model. Covariation between predictor variables was permitted in all models and residual terms were allowed to be correlated

[11] On average, mothers reported approximately 30 minutes less than fathers.

between partners. Relying on common goodness-of-fit criteria (see Hu & Bentler, 1999; Kline, 2011), the model with equal actor and partner effects across gender proved to be the most parsimonious fitting model (chi^2 = 5.501, *df* = 9, *p* = .789; CFI = 1, RMSEA = 0, SRMR = .025).

We included relationship duration, number of children living in the household and weekly working hours of both partners to control for potential confounders in all models. Effects of control variables were not allowed to vary across genders and showed no significant association with mother's or father's satisfaction with shared time. To simplify the interpretation of effects and to eliminate nonessential multicollinearity, all control variables and self-disclosure were standardized (Aiken & West, 1991). Time quantity was centered, so that one hour rather than one standard deviation remained the unit of interpretation.

Analyses were conducted with Mplus 7 (Muthén & Muthén, 1998 - 2012) using the implemented full information maximum likelihood (FIML) estimation procedure to handle missing data. This procedure has been shown to be preferable to alternative strategies like listwise deletion or mean substitution (Acock, 2005). Analyses conducted with complete data for both partners (*n* = 84 couples) resulted in essentially identical results.

Results

Descriptive statistics and pairwise correlations among study variables are depicted in Table 2. Except for time quantity and fathers' self-disclosure, all study measures were significantly correlated with each other.

As predicted, the conditional main effects of time quantity and one's own, as well as, partner's self-disclosure were significant. Specifically, parents spending more shared time together also reported higher satisfaction with shared time (*b* = .054, *p* = .012), and more self-disclosure –own or partner's with a similar magnitude– was associated with higher satisfaction with shared time for mothers and fathers (actor: *b* = .152, *p* = .006; partner: *b* = .143, *p* = .008). We also tested for curvilinear effects of shared time, but as the squared term

for time quantity was non-significant and did not improve model fit, we did not include it in the final model depicted in Figure 6. Surprisingly, and in contrast to our predictions, the two-way interaction of time quantity by one's own self-disclosure (moderated actor effect) was marginally significantly negative (b = -.039, p = .061). The moderated partner effect was non-significant.

Table 2.

Descriptive statistics and pairwise correlations among study variables of study A

	Mean and standard deviation					Bivariate correlations		
	Mothers (n = 90)		Fathers (n = 90)					
Variables	*M*	*SD*	*M*	*SD*	*paired t(89)*	1	2	3
1 Satisfaction with shared time	3.19	0.73	3.17	0.67	0.287	**.46*****	.19†	.26*
2 Self-disclosure	4.44	0.64	4.04	0.81	4.420***	.35***	**.31****	-.08
3 Time quantity[a]	4.84	2.62				.18†	.30***	

Note. Parents could report satisfaction with shared time from 1 to 4, self-disclosure from 1 to 5, time quantity from 0 to 18 hours. Correlations under the main diagonal are mothers', above the diagonal are fathers', correlations of the same construct across genders are bold-typed on the main diagonal.
[a] Average across weekdays, same for mothers and fathers.
†*p < .10. *p < .05. **p <.01. ***p < .001.*

We visualized the interaction in Figure 7 using +/- 1 SDs below and above the mean for low levels and high levels of self-disclosure following the methods suggested by Aiken and West (1991). Parents who perceived the level of self-disclosure during shared time as low reported an increased satisfaction with shared time when their amount of time spent together increased, whereas parents who rated levels of self-disclosure during time spent together as being high hardly profited from more shared time.

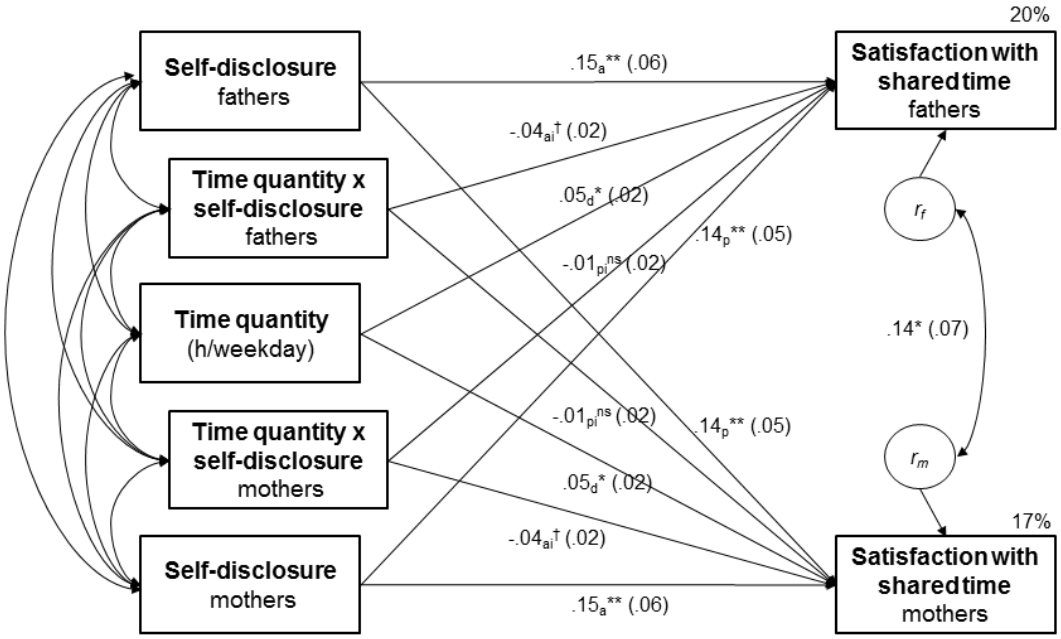


Figure 6. Unstandardized regression coefficients of the actor–partner–interdependence model (Study A).

Note. We controlled for relationship duration, working hours of both partners, and number of children living in the household; standard errors in parenthesis (SE); effects with the same subscript were set equal; f = fathers, m = mothers; ns = non-significant.
†$p < .10$, *$p < .05$, **$p < .01$, ***$p < .001$.

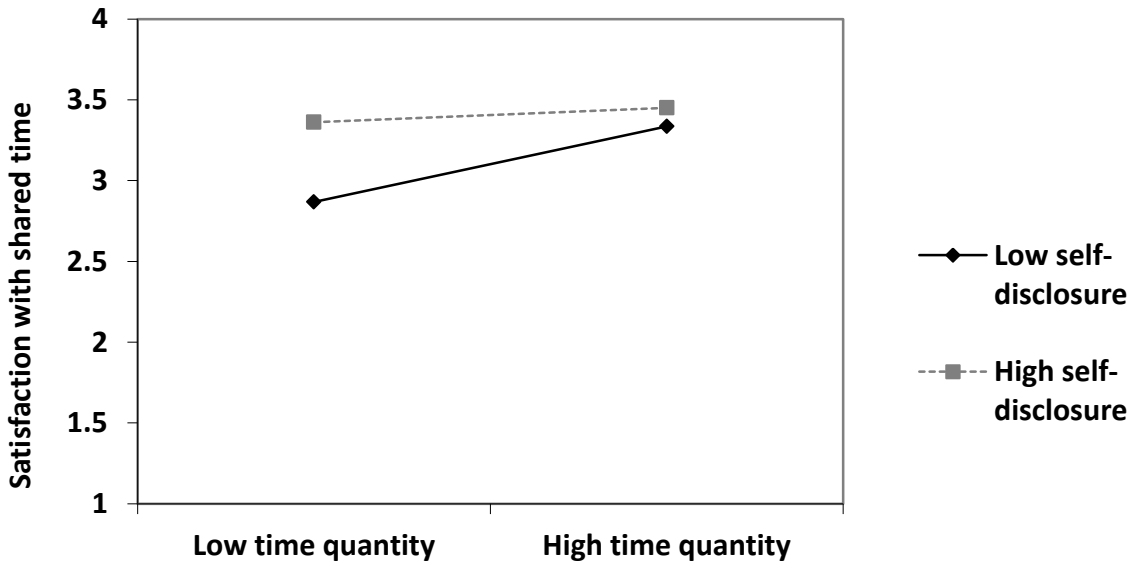


Figure 7. Visualization of the interaction effect of time quantity and self-disclosure on satisfaction with shared time (Study A).

Discussion

In accord with our hypothesis and prior literature (e.g., Kingston & Nock, 1987; Orthner, 1975) spending more time together enhanced parents' satisfaction with shared time, but only to a fairly small extent compared to self-disclosure, which contributed to a larger share to the prediction of parents' satisfaction with shared time. Effects did not differ between genders and partner's as well as owns self-disclosure was similarly associated with one's satisfaction with shared time. This result goes in line with other literature suggesting intimate relationships are guided strongly by mutuality of self-disclosure (Giddens, 1990; Reis & Shaver, 1988). Sharing one's time and thoughts is truly an interactive process, which mutually affects partners' satisfaction with shared time.

In contrast to our assumptions and theoretical implications from leisure research (Flora & Segrin, 1998; Holman & Jacquart, 1988; Orthner, 1975), it were the mothers and fathers who perceived the level of self-disclosure during shared time as low, for whom more time quantity was positively related to satisfaction with shared time. The moderation effects were clearly quite small and only marginally significant; therefore, they should be interpreted with caution and must be tested in further studies before conclusions can be drawn.

Additionally, there might be other couple specific characteristics (e.g., low verbal communication skills) or situational factors (e.g., level of external stress) that were not considered in the model but could further explain the surprising findings. First, couples with high verbal communication skills may use even small amounts of time effectively for sharing thoughts and feelings, whereas spending (a lot of) time together might be a compensatory strategy for couples who have fewer verbal communication skills to relate to the partner and feel satisfied with the time spent together. Such couples might depend more strongly on nonverbal gestures (e.g., touch; Debrot et al., 2013) to establish closeness, for which physical proximity is a prerequisite. Second, external stress is known to lead to less self-disclosure and to more withdrawal in interpersonal relationships (Repetti, 1989; Repetti et al., 2009),

potentially also altering the positive influence of leisure time on relationship functioning (Holman & Jacquart, 1988) and parents' satisfaction with the time spent together. As we explained only 17% (for mothers) and 20% (for fathers) of the variability of satisfaction with shared time with our model, additional predictors may likely to be influential as well. To be able to eliminate effects due to (potentially unknown) between-couple variability and enhance our understanding of how external stress might impair parents' satisfaction with shared time on a daily basis, we included external stress and focused on within-person effects in study B.

Study B

Method

Participants and procedure

As part of a larger project investigating how the quality and quantity of shared family time affects juvenile functioning in Switzerland, mother-child dyads were recruited through parental associations and via an announcement in a newspaper. After initial contact, mothers were screened through telephone interviews for the following criteria: (1) being in a committed heterosexual relationship for at least 1 year, (2) having at least one child between the age of 9 to 13 years (also willing to participate in the study), and (3) sufficient fluency in German language. In total, 96 mothers were interested in participation and fulfilled eligibility criteria; however, 4 failed to return the dairies, so data of 92 mothers were analyzed. Fathers' data were not available and children's data will not be considered in the present study.

Mothers were between 31 and 53 years old (M = 42.62, SD = 4.19), married (n = 84) or in a committed heterosexual relationship (n = 8). All mothers but 2 lived together with their spouses. Mean relationship duration was 17.25 years (min = 1, max = 32, SD = 6.07) and mothers had on average 2.39 children (min = 1, max = 5, SD = .97). The majority of mothers (79%) were part-time or full-time employed and worked on average 18 hours per week (SD =

10.45); 16% were homemakers and 5% were still studying or reported to be unemployed at time of assessment. Most mothers had either a high-school (38%) or university degree (40%).

Mothers were sent a set of paper-pencil dairies and were given an one-to-one briefing about the diary procedures via phone three days prior to starting the diary period. They were asked to complete the dairies for 14 consecutive evenings (starting on a Monday) that would be representative of their daily lives, explicitly excluding holidays or special events. Mothers were instructed to answer the items within one hour before going to bed (range: 7pm to 2am, mode 10pm; data filled in later than 2am were set to missing) and return the diary per mail after the completion of the assessment period. In total, the data from 1,259 days could be analyzed. For all variables of interest, below 5 percent of the data were missing. Mothers received a self-directed marital distress prevention DVD (Bodenmann, Schaer, & Gmelch, 2008b) and obtained a report of the findings at the end of the study. All study procedures were approved by the local university ethics committee.

Measures

Every evening, satisfaction with shared time, time quantity and self-disclosure were assessed using the single item measures introduced in study A, wording only slightly modified to fit the diary context. Additionally, mothers rated on a four-point scale (0 = *not at all* to 3 = *very strongly*) to what extent they had experienced (a) work-related stress (b) child-related stress and (c) daily hassles during the day.

Mothers' average satisfaction with the time spent with the partner varied between 1.93 and 5 (M = 3.47, SD = 0.69). Averaged across the total assessment period between persons, mothers spent approximately 3.35 hours (SD = 1.34, min = 1.1, max = 8.2) on weekdays but significantly more time – 9.35 hours (SD = 3.14, min = 1.0, max = 16.5) – on weekends with their partners. Overall, mothers reported low levels of average external stress (for descriptive statistics, see Table 2).

Statistical analysis

We conducted multilevel models to replicate the analyses of study A for the within-personal level and to address the hypotheses related to external stress specific to study B. Multilevel models are apt to represent the nested structure of diary data, specifically repeated measures within mothers, as they can capture correlations among daily observations within persons through the estimation of fixed and random effects. Partitioning the variance of satisfaction with shared time into within-person and between-person components revealed that 73 % of variance in mothers' satisfaction with shared time could be attributed to variation within mothers.

We allowed slopes (reflecting differences in the effects of predictors) to vary randomly across persons. Additionally, as mothers spent a significantly higher amount of time with their partner on weekends, a dummy coded variable (Monday to Friday = 0, Saturday and Sunday =1) was included in all models. Besides this dummy variable, we did not include any other predictors to differentiate between days, because we did not find systematic trends over time.

All analyses were conducted using the IBM SPSS Statistics 20 package and Mplus 7 (Muthén & Muthén, 1998 - 2012). Following suggestions of Shrout and Bolger (2002) we applied bootstrapping (500 samples) to correctly estimate the sampling distribution of indirect effects and corresponding standard errors in all mediated multilevel models.

Results

Except for time quantity and child-related stress, all study measures were significantly correlated on the within-person level (see Table *3*). In a first step, we replicated the analysis of study A for the within-personal level by conducting a moderated multilevel model (see Table *4*) concentrating on the fixed effects. We included three control variables (daily working hours, mean age of children in the household, relationship duration) and the weekend dummy variable, as well as the daily time quantity, daily self-disclosure and the

corresponding interaction term. In this moderation model, we also added interaction terms of the weekend dummy variable and the predictors of interest (including the 3-way interaction daily time quantity * daily self-disclosure * weekend) to test whether associations differ between weekend and weekdays. Additionally, we accounted for correlations between satisfaction with shared time of subsequent days, but residuals were not autocorrelated (b = .042, SE = .036, p = .240).

We found significant positive conditional main effects for time quantity and self-disclosure, and a marginally significant negative interaction of the two variables. On days when mothers spent more time together, and particularly, when they reported higher self-disclosure than usual, they were more satisfied with the time spent together with their partners. In line with results of study A, on days when mothers reported more self-disclosure than usual shared time was less strongly associated with satisfaction with shared time than on other days.

Table 3.

Within-person correlations and descriptive statistics among study variables across the assessment period (14 days, n = 1259) of study B

	range	*M*	*SD*	*1*	*2*	*3*	*4*	*5*
1 SAT	1-5	3.47	1.19					
2 Self-disclosure	1-5	3.63	1.30	.62***				
3 Time quantity[a]	0-18	5.06	4.19	.43***	.36***			
4 Daily hassles	0-3	0.65	0.78	-.24***	-.10***	-.09***		
5 Child-related stress	0-3	0.44	0.67	-.16***	-.09**	-.03	.21***	
6 Work-related stress	0-3	0.50	0.79	-.19***	-.10***	-.22***	.17***	.13***

Note. [a] Daily average across weekdays and weekend days, SAT = satisfaction with shared time.
**p < .05. **p <.01. ***p < .001.*

Interestingly, effects of time quantity and self-disclosure seem to differ for weekdays in comparison to weekend days: The 3-way-interaction was non-significant and therefore not included in the final model, but the 2-way interactions with the dummy variable differentiating weekdays were significant (for time quantity: b = -.06, p = .003; for self-disclosure: b = .14, p = .010). As visualized in Figure 8, on a weekday, one hour more shared time was more strongly associated with satisfaction with shared time than an increase of one hour on a weekend day. At the same time, when mothers reported less self-disclosure on weekend days compared to a similarly low level on a weekday, they reported less satisfaction with shared time.

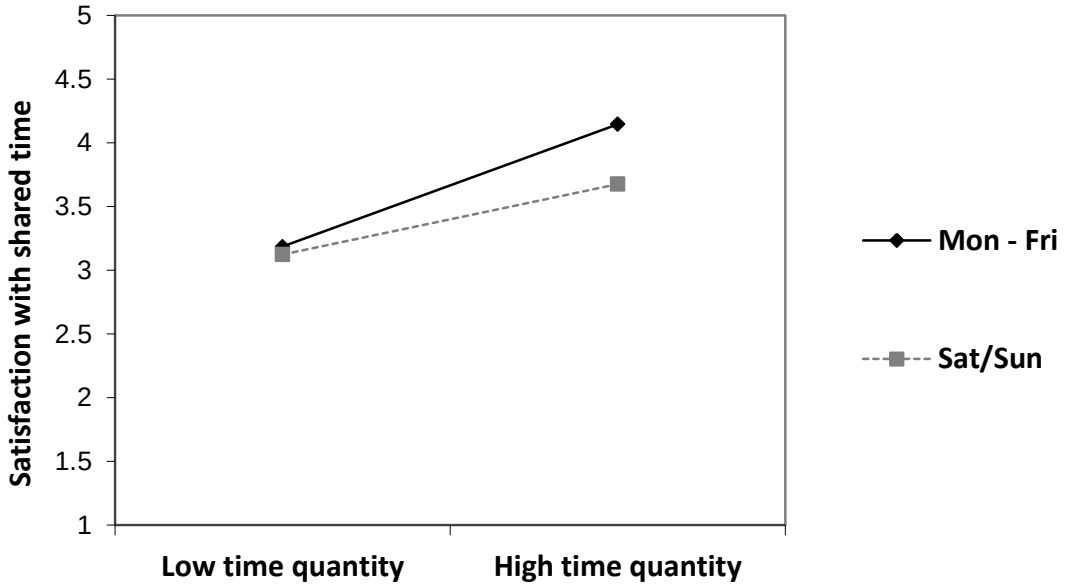
Table 4.

Unstandardized fixed effects within-persons of a moderated multilevel model (Study B)

	Daily satisfaction with shared time			
	Est	*SE*	*t*	*p*
Fixed effects				
Intercept	3.666	.345	10.331	.000
Weekend	-.266	.072	-3.716	.000
Daily time quantity	.134	.015	9.000	.000
Daily self-disclosure	.269	.025	10.813	.000
Daily time quantity * daily self-disclosure	-.011	.006	-1.937	.054
Weekend * daily time quantity	-.057	.019	-3.028	.003
Weekend * daily self-disclosure	.139	.054	2.596	.010

Note. N = 92 women, 1259 diary days, Est = unstandardized estimate, SE = standard error, all models accounted for relationship duration, daily working hours, and mean age of children.

a) Interaction: Day of the week and time quantity



b) Interaction: Day of the week and self-disclosure

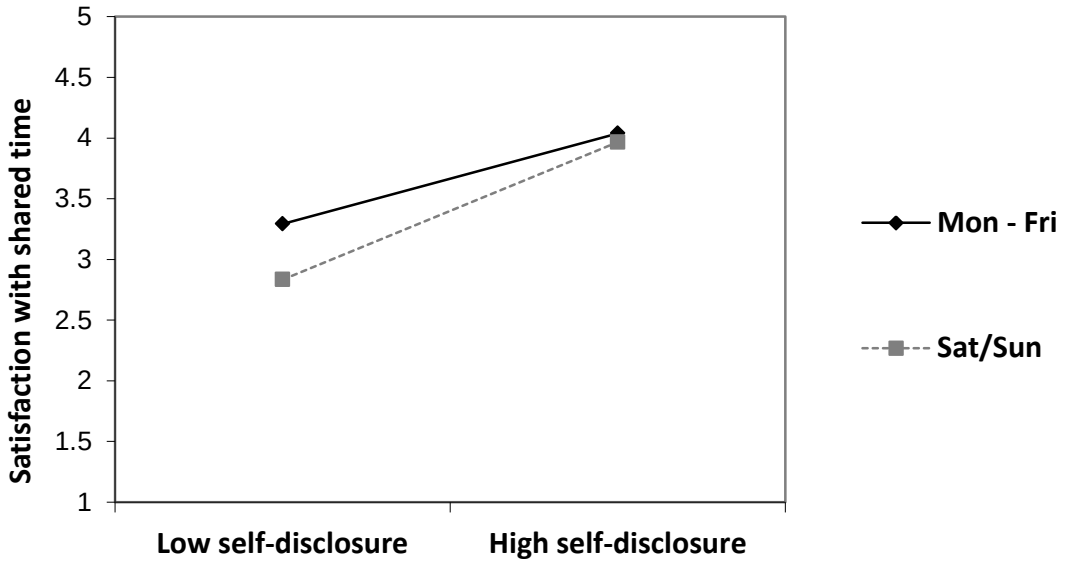


Figure 8. Visualization of the interaction effects of the binary variable indicating the day of the week and (a) time quantity and (b) self-disclosure on satisfaction with shared time (Study B).

In a second step, we conducted two series of within-subject mediation multilevel models separately (including one external stress at a time) for time quantity and self-disclosure as mediators using procedures recommended by Bolger and Laurenceau (2013, chap. 9). Mediation is said to occur when the effect of mothers' external stress on their satisfaction with shared time can be fully explained by a significant indirect effect via time quantity or self-disclosure, respectively. As the focus of interest in study B was on within-personal rather than between-personal processes and for computational purposes, all variables (including the outcome) were standardized and centered at the person's mean to remove the effect attributable to general individual tendencies at level 2 for the mediational models (see Bolger & Laurenceau, 2013). Results of the fixed effects are reported in Table *5* and Figure 9 and results of the random effects are reported in Table *6*.

Table 5.

Total and indirect within-person effects of external stress on mothers' satisfaction with shared time (Study B)

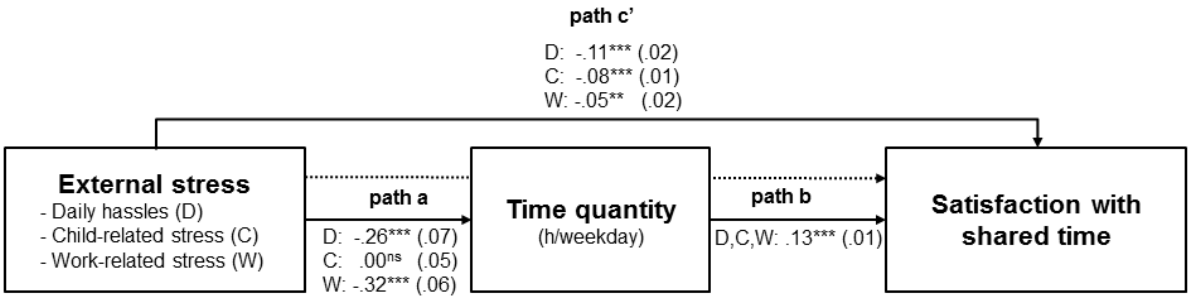
	Total effects		Indirect effects via time quantity		Indirect effects via self-disclosure	
	b	*CI[95%]*	*b*	*CI[95%]*	*b*	*CI[95%]*
Daily hassles	-.137***	[-.180, -.094]	-.030*	[-.053, -.006]	-.028†	[-.061, .004]
Child-related stress	-.079***	[-.110, -.048]	.002^{ns}	[-.013, .017]	-.021*	[-.041, -.001]
Work-related stress[a]	-.090***	[-.129, -.051]	-.044***	[-.062, -.025]	-.030*	[-.058, -.003]

Note. Total effects are reported for the models with time quantity as mediator and differed only minimally when self-disclosure was included instead; because of centering at the personal mean, the intercept is not reported (equal to 0).

[a] Data from $n = 17$ women (housewives/ unemployed) were excluded.

$^{\dagger}p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

a) Multilevel models with time quantity as mediator



b) Multilevel models with self-disclosure as mediator

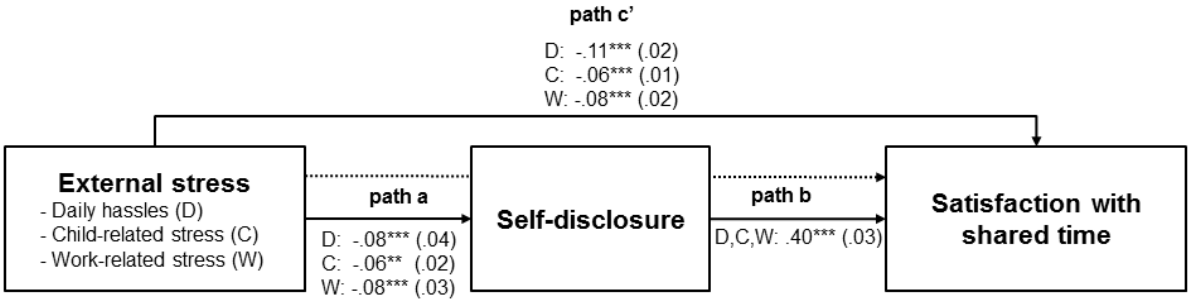


Figure 9. Unstandardized regression coefficients of mediated multilevel models (study B).

Note. We controlled for weekend; standard errors in parenthesis (SE); for work-related stress, data from $n = 17$ women (housewives/ unemployed) were excluded. Path b varied only in the third decimal place for the stress of the corresponding mediator, and is therefore only displayed once.
†$p < .10$, *$p < .05$, **$p < .01$, ***$p < .001$.

Fixed effects. In accordance with our hypotheses, external stress was significantly related to less satisfaction with shared time (total effects varied between b = -.14 for daily hassles and b = -.08 for child related stress). This shows that on days when mothers had experienced high levels of external stress throughout the day in comparison to ordinary stressful days, they felt less satisfied with the time they had spent together with their partners in the evenings. As expected, external stress was likewise negatively related to self-disclosure and time quantity, with exception of child-related stress. Testing the indirect effects revealed that the associations between external stress and satisfaction with shared time were partially mediated by self-disclosure and the time quantity. The direct effects of external stress on satisfaction with shared time was substantially reduced but remained significant. Only for child-related stress we did not find an indirect effect via time quantity (b = .002, p = .820). Even though mothers reported less self-disclosure on days when they experienced high levels of stress with regard to their children, they did not spent less time together with their partners than usual.

Random effects. We did not find any significant variance for of the average associations between external stress and the mediating variables (paths a) or the outcome (paths c'), but for the average associations between time quantity and self-disclosure with satisfaction with shared time (paths b). The variability for the slopes of time quantity on satisfaction with shared time (*var* = .002, p = .027) was slightly less than the variability for the slopes of self-disclosure on satisfaction with shared time (*var* = .017, p = .006). Taking +/- 1 standard deviation, the mothers' slopes varied between .09 and .18 for time quantity and between .26 and .52 for self-disclosure. Even though an hour more of shared time or a 1 standard deviation higher level of self-disclosure than usual were generally related to higher satisfaction with shared time, this seemed not to be the case in the same magnitude for all mothers.

Table 6.

Random effects of mediated multilevel models (Study B)

	Model series 1 Time quantity as mediator				Model series 2 Self-Disclosure as mediator			
Random effects	*Est*	*SE*	*Est/SE*	*p*	*Est*	*SE*	*Est/SE*	*p*
Variances (paths a,b,c')								
Paths a								
Daily hassles -> mediator	.019	.084	0.226	.821	.017	.015	1.135	.256
Child-related stress -> mediator	.009	.037	0.237	.813	.003	.008	0.334	.738
Work-related stress[a] -> mediator	.010	.051	0.198	.843	.002	.011	0.173	.863
Paths b[b]								
Mediator -> SAT	.002	.001	2.217	.027	.015	.005	2.876	.004
Paths c'								
Daily hassles -> SAT	.001	.007	0.103	.918	.003	.005	0.575	.565
Child-related stress -> SAT	.001	.002	0.673	.501	.003	.002	1.629	.103
Work-related stress[a] -> SAT	.002	.004	0.421	.674	.004	.003	1.391	.164
*Co-variances (paths a*b)*								
Daily hassles * mediator	.004	.007	0.662	.508	.004	.007	0.633	.527
Child-related stress * mediator	.002	.004	0.415	.678	.004	.005	0.911	.362
Work-related stress[a] * mediator	-.003	.005	-0.657	.511	.000	.007	-.063	.949

Note. *N* = 92 women, 1259 diary days, Est = unstandardized estimate. All models accounted for weekend; SAT = satisfaction with shared time.

[a] Data from *n* = 17 women (housewives/ unemployed) were excluded.

[b] Effects varied only minimally for all three models with the corresponding mediator and are therefore not reported separately.

Discussion

In the second study focusing on within-personal effects, we could replicate the results of study A. Both, the daily time quantity and the level of self-disclosure were related to mothers' satisfaction with time together. We also replicated the (marginally significant) negative interaction of the two predictors, supporting the notion that when engaging less in self-disclosure more shared time might be needed to compensate. The relevance of time quantity as well as self-disclosure for satisfaction with shared time did not only differ between mothers, but also within mothers on weekdays versus weekend days. The weekends in particular might be important to emotionally reconnect by sharing thoughts and feeling. If less self-disclosure than usual is exercised on a Saturday or Sunday, satisfaction with shared time was most strongly affected.

Daily external stress impaired mother's satisfaction with shared time via means of reduced time quantity and lower levels of self-disclosure, providing empirical support to theory from stress research (Bodenmann, Charvoz, et al., 2007), replicating results with regard to self-disclosure from Repetti and colleagues (Repetti, 1989; Repetti et al., 2009), and extending our knowledge about spillover mechanisms of stress. While prior cross-sectional studies failed to identify time quantity as a mediator (Milek et al., submitted), the analysis of daily diary data in this study revealed that external stress not only deteriorated daily communication in couples, but also reduced the daily amount of shared time, and hence, indirectly and directly impacted satisfaction with shared time.

The study also exemplified that not all types of external stress might be associated in the same way with couple's satisfaction with shared time. For example, child-related stress was shown to have detrimental effects on parents' satisfaction via less self-disclosure only, but was not associated with the amount of time spent together during weekdays. Where, in contrast, work-related stress was associated with less self-disclosure but also with reduced time quantity of approximately 20 minutes (see also Weißbrodt, 2005). Although the effects

were quite small, even small effects are potentially relevant in this day-to-day context. These small effects are likely to have long term repercussions if they accumulate or become chronic. We can proceed on the assumption, that similar spillover mechanisms apply to all mothers, as we did not find significant between-person variability for any of the effects of external stress. Mothers differed with regard to how strongly time quantity and self-disclosure mattered for their daily satisfaction with shared time. So far, we can only speculate why that is the case. For example, there might be other time related factors, such as the compatibility of the partners' time preferences (Crawford et al., 2002) or overall time balance, e.g., conflicting needs for shared time versus one's own time (Beck & Beck-Gernsheim, 2002) that alter whether more time enhances satisfaction with shared time. Additionally, the relevance of time quantity and self-disclosure, respectively, may change throughout different stages of a couple relationship (Claxton & Perry-Jenkins, 2008; Orthner, 1975). Further research should aim to clarify under what circumstances, for whom, how much time spent in which way is required to be satisfied with shared time.

General Discussion

The present research was the first to investigate what contributes to parents' satisfaction with shared time –an important but neglected predictor for relationship quality– by examining the interplay between time quantity, self-disclosure and external stress. We tested whether time quantity moderated by the intensity of self-disclosure is associated to parents' satisfaction with shared time and how time quantity and self-disclosure are related within-person once external stress comes into play.

Overall, our results emphasized that parents' satisfaction with shared time depended first and foremost on the level of communication during time spent together, but was also positively related to time quantity. Specifically, mothers and fathers who rated levels of self-disclosure during time spent together as being low seemed to benefit from more shared time. For parents who engaged more often in self-disclosure when they saw each other (even

though children might have been present), time quantity appeared to be less important for being satisfied with shared time. Moreover, mothers reported higher satisfaction with shared time on days when they spent more time together than usual (controlling for their own average level of self-disclosure), but increased shared time was slightly less associated with satisfaction on days when they reported higher self-disclosure than usual. Further, the empirical findings support the notion that negative spillover effects between daily external stress and satisfaction with shared time are mediated via reduced time quantity and lower levels of self-disclosure on a day-to-day basis. On days when mothers experienced high levels of external stress, they spent less time together and disclosed fewer thoughts and feelings to their partners, accompanied by a decrease in satisfaction with shared time.

Strengths, limitations and future directions

This study has been the first to explicitly investigate parental satisfaction with shared time. By examining the interplay of time quantity and self-disclosure and establishing that external stress across different contexts impair shared time on a within-person level, we contributed to the understanding of ongoing processes involving shared time. Current studies show that a majority of couples is not entirely satisfied with the time they spend together (Daly, 2001a; Jurczyk & Heitkötter, 2012; Matos & Galinsky, 2010; Roxburgh, 2006), so extending this line of research is a promising pathway to learn more about the whys and wherefores, and ultimately, be able to help parents preserving their satisfaction with shared time from deteriorating.

Several limitations must be considered when interpreting the results. First, findings of study B are based on the mother's perceptions only and the interdependence between couple members could thus not be analyzed. Even though we did not find gender differences in study A, mechanisms involving shared time might vary between genders once stress comes into play. Women and men are affected by and respond to stress differently (Tamres et al., 2002) and place varying emphasize on the quality and quantity of shared time (Gager & Sanchez,

2003; Rhyne, 1981; Roxburgh, 2006). Accordingly, there might be a mismatch between spousal expectations under time pressure and stress. Second, our data does not allow for causal interpretations. The cognitive-behavioral model of marriage (Baucom & Epstein, 1990) suggests a temporal ordering in a way that cognitions (e.g., appraisals of stress) influence behavior (e.g., interactions like self-disclosure during shared time), which, in turn, determines marital satisfaction or satisfaction with shared time as in our study. Up to now, empirical evidence with regard to shared time and relationship satisfaction has been inconclusive in this matter (Berg et al., 2001; Hill, 1988; Reissman et al., 1993; White, 1983). As Smith, Synder, Trull and Monsma (1988) already pointed out, the directions of influence are likely to be reciprocal: The interpretation that parents, who are highly satisfied with their shared time, might be more motivated to increase the amount of time they spend together has substantial merit. Further studies should use longitudinal couple data to empirically test for directions of causality. Third, the participating couples in our studies all had children (which were at least school-age), were fairly satisfied with their relationships, experienced relatively low levels of external stress (study B), and were embedded in European cultures. Therefore, results cannot be generalized to all couples in general. Future studies should investigate the effects of shared time for a wider range of couples (e.g., couples young children, high-conflict therapy couples, couples exposed to substantial external stress, couples living in a different cultural setting) to validate whether the same or additional factors predict satisfaction with shared time.

Conclusion

Even though we still know only little about how much time spent in what way is mutually satisfying for which couples, our findings support the notion that deliberately taking the time for mutual self-disclosure may prevent one's own and partner's satisfaction with shared time from deteriorating, especially on a stressful day when time is scarce. Albeit satisfaction with shared time may be more susceptible to variability of time quantity on weekdays, it is the *weekend* when couples spend the most time together. The weekend appears

to be important –at least for mothers– to (re)connect by sharing thoughts and feelings and make up for less time during the week.

Additionally, increasing parents' awareness of how external stress impinge on couple's time together by psycho-education, and in a second step, teaching them how to cope together effectively with stressful encounters may be promising pathway to armor couples for the negative spillover effects of stress. Prevention programs that explicitly include the training of couples' dyadic coping skills in addition to communication skills have already proven their effectiveness (TOGETHER; Falconier, 2014; SIDE TO SIDE; Heinrichs et al., 2012; CCET; Schaer, Bodenmann, & Klink, 2008).

STUDY III

WITHIN- AND BETWEEN-PERSON EFFECTS OF COUPLE'S SHARED TIME ON WOMEN'S INTIMACY

9. Study III: Within- and Between-Person Effects of Couple's Shared Time on Women's Intimacy

Abstract

Spending time together is thought to be central for couples to build intimacy, but empirical findings have been mixed, possibly because it may depend on what people do during that time. The present study used 14 days of diary data from 92 women to investigate within- and between-person associations between the amount of time the women spent with their partner (shared time)[12] and intimacy, taking the moderating effect of daily distress originating inside the relationship (internal distress) into account. Results showed that, as predicted, on days when women spent more time with their partners than usual, they also reported higher levels of intimacy, whereas on days with more internal distress they reported lower intimacy. In addition, more shared time was less positively associated with women's intimacy on days with high levels of internal distress. On the between-person level, women who reported high average levels of internal distress also reported lower average intimacy, similar to the within-person pattern, but in contrast this effect was buffered if they spent more time on average with their partner than other women. Thus, distress may dampen the immediate positive influence of time together on intimacy, but aggregated over the long run, spending more time together may provide an opportunity for conflict resolution and help couples overcome the negative impact of distress on intimacy.

Introduction

Spending time together with one's spouse is positively related to a variety of favorable marital outcomes, such as relationship satisfaction and marital happiness (Hatch & Bulcroft, 2004; Kingston & Nock, 1987; Kirchler, 1988; Orthner, 1975) and is an important

[12] For the purpose of consistency within this thesis, the wording has been changed in accordance to the definition given in Chapter 1. In the submitted manuscript the term 'couple time' has been used instead of the term 'shared time'.

maintenance strategy for marital stability (Hill, 1988). However, only a few studies have examined the impact of the amount of time a couple spends together on intimacy. This is surprising as (a) intimacy is commonly conceptualized as an interpersonal process evolving from interactions over time (Reis & Shaver, 1988) and (b) it is known that spending time together facilitates intimate interactions (Lenz, 2009; Stafford, Merolla, & Castle, 2006). The few studies that did consider intimacy and shared time focused on between-person effects (e.g., Crystal Jiang & Hancock, 2013) and found little evidence that shared time matters for closeness in intimate relationships. For example, couples spending more time together did not report higher intimacy than couples in long-distance relationships (Guldner & Swensen, 1995). No study to the best of our knowledge, however, has addressed how shared time affects people on a within-person level, which is important for understanding the development of intimacy, nor do they consider other potentially relevant factors, such as whether conflict is occurring during that time. Therefore, the present daily diary study examines within- and between-person associations between amount of shared time and intimacy, taking moderating effects of daily internal distress into account.

Intimacy and amount of shared time

Theoretically, spending time together can be seen as one of the most important pathways to build mutual trust and establish closeness and intimacy in a relationship (Reis & Shaver, 1988). The stress–divorce model proposed by Bodenmann et al. (2007) suggests that less time spent together is one of four factors that lead to mutual alienation, to less relationship satisfaction and eventually to the dissolution of an intimate relationship. Bodenmann et al. (2007) argue that when couples do not spend enough time together, partners' feelings of togetherness and intimacy may decline due to a lack of shared experiences and less profound self-disclosure. As a result, couples might know less about their partners' innermost feelings and personal needs, show less acceptance and understanding towards each other and engage more often in negative communication.

Similarly, the interpersonal process model of intimacy explicitly acknowledges that intimacy accrues via disclosure-responsiveness exchanges between partners across repeated interactions over time (Reis & Shaver, 1988). Empirical work agrees and shows that couples develop a feeling of intimacy over reoccurring interactions characterized by disclosure of personal information and emotions, expression of positive feelings, and perceptions of being understood by one's partner (Laurenceau et al., 2005; Lippert & Prager, 2001). Physical proximity presumably fosters intimate interactions, as it –in contrast to interactions by mail or phone– allows for nonverbal communication and touch, which are known to affect intimacy (Debrot et al., 2013; Guerrero & Floyd, 2006; Prager, 1995). Hence couples should have more opportunities to enhance their intimacy when they spend a lot of time together.

Despite the appeal of this reasoning, results of cross-sectional studies investigating associations between the amount of shared (leisure) time and relationship satisfaction show inconsistent findings (Berg et al., 2001; e.g., Crawford et al., 2002; Flora & Segrin, 1998; Kingston & Nock, 1987; Orthner, 1975). Whereas in earlier studies the mere amount of time spent together was found to be positively related to relationship outcomes (e.g., Kingston & Nock, 1987; Orthner, 1975), more recent studies did not find amount of shared time to be a significant predictor of relationship satisfaction (e.g., Berg et al., 2001; Crawford et al., 2002; Flora & Segrin, 1998). Moreover, studies comparing individuals' intimacy ratings in long-distance versus geographically close intimate relationships found no difference in reported levels of intimacy (Guldner & Swensen, 1995) or even greater intimacy for individuals in long-distance relationships (Crystal Jiang & Hancock, 2013).Stafford and Merolla (2007) offered an explanation for these counterintuitive results: Some couples might employ adaptive strategies such as relational maintenance behaviors (e.g., prospective-intrapersonal communication; Merolla, 2012), cognitions (e.g., romantic idealization, Crystal Jiang & Hancock, 2013), or use increased mediated communication (e.g., via phone or email; Crystal Jiang & Hancock, 2013) to avoid mutual alienation. Previous studies, however, did not

address ongoing processes that happen *within* a relationship: Do partners feel more intimate on days they spend a lot of time together compared to days they hardly see each other, and does it matter whether they experience distress with each other during the same time?

Deteriorating effects of internal distress

From a within-person perspective, daily internal distress seems likely to undermine any positive effects of shared time on intimacy. Even though spending time together may enhance intimacy on ordinary days, spending time together might not necessarily contribute to couples' intimacy during days with high levels of internal distress. In situations of internal conflict, partners are more likely to express open negativity (e.g., agitation, irritability, anger), withdrawal (e.g., less responsiveness towards the partner, less caring and warm behavior, more distracted behavior and behavioral retreat), and are less able to sympathetically respond to disclosures, all of which would impair the establishment of intimacy (Reis & Shaver, 1988).

From a between-person perspective, however, it is conceivable that internal distress could affect the relation of shared time and intimacy either negatively or positively. On the one hand, couples, who regularly use their time together for arguing and dwelling in negativity instead of engaging in positive interactions, might experience less intimacy than couples who spend a similar amount of time together but have fewer conflicts. Osgarby and Halford (2013) showed that distressed couples demonstrated lower rates of dyadic intimacy and positive affect compared with non-distressed couples during a positive reminiscence task. On the other hand, internal distress and conflict do not have to drive couples apart. According to Gottman and Krokoff (1989), disagreement and anger exchanges might actually increase couples' relationship satisfaction in the long term. Facing rather than avoiding conflict and resolving it constructively might be a pathway to establish intimacy. Thus, couples who experience high levels of internal distress, but take the time together needed to resolve the issues, may not suffer any intimacy decrements.

Hypotheses

In sum, theory suggests that spending time together might be "a short-run and a long-run cohesive force" (Hill, 1988, p. 428) serving an important function in building closeness and intimacy between spouses, even though some empirical studies failed to detect effects between persons. From a within-person perspective, more time spent together is likely to often have a positive impact on intimacy, although this may not be true in the presence of conflict. The present study tests this idea with daily reports from women in committed romantic relationships (data were not available for the male partners). More specifically, on days with more shared time than usual, we expected the women to report more intimacy (Hypothesis 1). Similarly, on days with more internal distress than usual we expected women to report lower intimacy (Hypothesis 2). Furthermore, high levels of internal distress were expected to undermine the positive effects of shared time on a day-to-day basis. More specifically, we predicted that on days with a lot of marital conflict, spending more time together would not increase women's intimacy as much as it would on low conflict days (Hypothesis 3). Research does not point towards a consistent influence of internal distress on the between-person link between average shared time and average intimacy. Thus, we examined internal distress as a possible moderator of the association between shared time and intimacy on the within-person and between-person level without formulating a hypothesis for the latter.

Method

Participants and procedure

Mother-child dyads were recruited through parental associations and via an announcement in a newspaper, as part of a larger project investigating how the quality and quantity of shared family time affects juvenile functioning. In total, 96 women and their children were interested in participation and signed an informed consent; however, 4 failed to

return the dairies, so 92 German speaking women participated in this diary study. Women were between 31 and 53 years old (M = 42.62, SD = 4.19), married (n = 84) or in a committed heterosexual relationship (n = 8). All women but 2 were living together with their spouses. Mean relationship duration was 17.25 years (min = 1, max = 32, SD = 6.07) and the women had on average 2.39 children (min = 1, max = 5, SD = .97), and thus approximately one child more than the average woman in Germany (German Federal Statistical Office, 2012). The majority of women (79%) were part-time or full-time employed and worked on average 18 hours per week (SD = 10.45); 16% were house wives and 5% were still studying or reported to be unemployed at time of assessment. Most women had either a high-school (38%) or university degree (40%), and were satisfied or very satisfied with their relationship (min = 1, max = 5, M = 4.18 SD = .64, assessed with the German version of the Relationship Assessment Scale, Hendrick, Dicke, & Hendrick, 1998; Sander & Böcker, 1993).

After an initial phone contact, all study materials were sent home to the families. Women were asked to fill in a general questionnaire and to familiarize themselves with the daily dairies, which were to be completed on 14 consecutive evenings that would be representative of their daily lives, explicitly excluding holidays or special events (starting on a Monday). Three days prior to starting the diary period, all women were called again to ensure that they were familiar with the diaries and to personally address potential open questions. Women were asked to answer the diary items every day within one hour before going to bed and to fill in the time, when they did (valid range: 7pm to 2am; mode: 10pm). Twenty women never indicated when they filled in the diaries. Nineteen entries were done the next morning and therefore excluded in all analyzes. After the diary period, women returned the diaries per mail in a provided envelope. In total, the data set contained information from 1259 days. For all variables of interest, less than 5 percent of the data were missing.

Women were not paid for participation, but they received a self-directed marital distress prevention DVD (Bodenmann et al., 2008b) and obtained a report of the findings after

completion of the study. All study procedures were approved by the local university ethics committee.

Measures

Intimacy. We used the intimacy scale developed by Debrot et al. (2012). Regardless of whether women had had any contact with their spouse, they rated four items (feelings of being secure, cared for, close to, and understood by the partner) on a five-point scale with response options ranging from 1 = *does not apply* to 5 = *applies very strongly*. The mean of the four daily items was used to reflect the daily perceived intimacy (M = 3.88, SD = 0.90). Additionally, the daily scores were averaged across all 14 days to obtain overall intimacy (range: 1.93 to 5.00; M = 3.89, SD = 0.67). Reliability calculated as recommended by Cranford et al. (2006) was excellent within (R_C = .87) and between (R_{KF} = .97) individuals.

Internal distress (ID). Women rated whether they had experienced stress that day in a variety of contexts (e.g., daily hassles, work, children, relationship, etc.). To assess stress specific to their relationship with their partner we focus on the item that asked, "*How much stress did you experience today in your relationship?"* Responses were on a four-point scale ranging from 0 = *not at all* to 3 = *very strongly* (range: 0 to 3; M = 0.31, SD = 0.62). Average levels of ID across the 14 days were low (range: 0 to 1, M = 0.31, SD = 0.28).

Amount of shared time (AT). Women reported how many hours (while being awake) they had spent with their partner during that day (min = 0, max = 18, M = 5.03, SD = 4.15). Average scores across the 14 days varied between 1.1 and 8.2 hours (M = 3.35, SD = 1.34) for weekdays and 1.0 and 16.5 hours (M = 9.35, SD = 3.14) for weekend days.

Statistical analysis

We conducted a series of random coefficient models over time using the multilevel MIXED method with maximum likelihood estimates in the IBM SPSS Statistics 20 package. Multilevel models account for the nested structure of the data, specifically repeated measures

within women, and allowed us to partition the variance in intimacy into within-person (level 1) and between-person (level 2) components. Following recommendations of Bolger and Laurenceau (2013), we person mean centered level 1 predictors, so that all within-person effects reflect daily deviations from women's own average. Level 2 predictors were grand mean centered, so that they represent deviations across women in average levels of internal distress and shared time. Additionally, because internal distress was quite low on average and had a limited range, the variables for internal distress at level 1 and level 2 were transformed by dividing them by the between-person standard deviation, such that one unit difference of the centered predictor variables represents a difference of .28 in the original internal distress scale. This transformation facilitates a meaningful interpretation of one unit of change, despite the small range for the original variable. We controlled for relationship length in all models, since intimacy might differ depending on the stage of a relationship (Baumeister & Bratslavsky, 1999). Furthermore, as women spent a significantly higher amount of time with their partner on weekends, a dummy coded variable (Monday to Friday = 0, Saturday and Sunday =1) was included. Besides this dummy variable, we did not incorporate any other predictors to differentiate between days, because we did not find systematic trends over time. To account for correlations between subsequent days, we allowed the residuals of the models to be autocorrelated (b = .154, SE = .035, p < .001).

We compared random intercept and slopes models with each other in terms of goodness of fit (see Singer & Willett, 2003). The model that allowed for variations of intercepts and the slope of shared time, but not any of the other slopes, provided the best fit. The final equation was:

$$\begin{aligned} Intimacy_{ij} = {} & \gamma_{00} + \gamma_{01}\left(AT_{B_j}\right) + \gamma_{02}\left(ID_{B_j}\right) + \gamma_{03}\left(AT_j * ID_{B_j}\right) + \gamma_{04}\left(RL_j\right) \\ & + \gamma_{10}\left(AT_{W_{ij}}\right) + \gamma_{20}\left(ID_{W_{ij}}\right) + \gamma_{11}\left(AT_{ij} * ID_{W_{ij}}\right) + \gamma_{30}\left(weekend_{ij}\right) + u_{0j} \\ & + u_{1j}\left(AT_{w_{ij}}\right) + \varepsilon_{ij}. \end{aligned}$$

$Intimacy_{ij}$ reflects the intimacy score at day *i* in woman *j*, γ_{00} is the grand mean (intercept), $\gamma_{01,}$ γ_{02} and γ_{04} represent the average difference between-women in intimacy for a one-unit increase in shared time (AT), internal distress (ID), and relationship length (RL, control variable), γ_{03} reflects the interaction of shared time and internal distress influencing the average score (across days) of intimacy. γ_{10} and γ_{20} reflect the change in intimacy for particular days given shared time and internal distress scores for that day. γ_{11} reflects the interaction of daily shared time and internal distress, γ_{30} represents the expected change in intimacy on weekend days vs. weekdays (control variable), u_{0j} is the deviation from the grand mean for woman *j*, u_{1j} is the random slope for woman *j* and ε_{ij} represents the regression residual for day *i* for woman *j*.

Results

Except for shared time and internal distress, study measures were significantly correlated on the within-person level (intimacy and internal distress: $r = -.43$, $p < .001$; intimacy and shared time: $r = .26$, $p < .001$; shared time and internal distress: $r = .02$, $p = .527$) and between-person level (intimacy and internal distress: $r = -.51$, $p < .001$; intimacy and shared time: $r = .20$, $p = .061$; shared time and internal distress: $r = -.06$, $p = .569$). The intraclass correlation was calculated and determined that 51 % of variance in intimacy occurred between women, leaving a significant proportion of variance (49%) that could be attributed to variation within women. All results of the final multilevel model are reported in Table 7, and are discussed in the following sections.

Table 7.

Parameter estimates of multilevel model for women's intimacy as a function of internal distress (ID) and amount of shared time (AT)

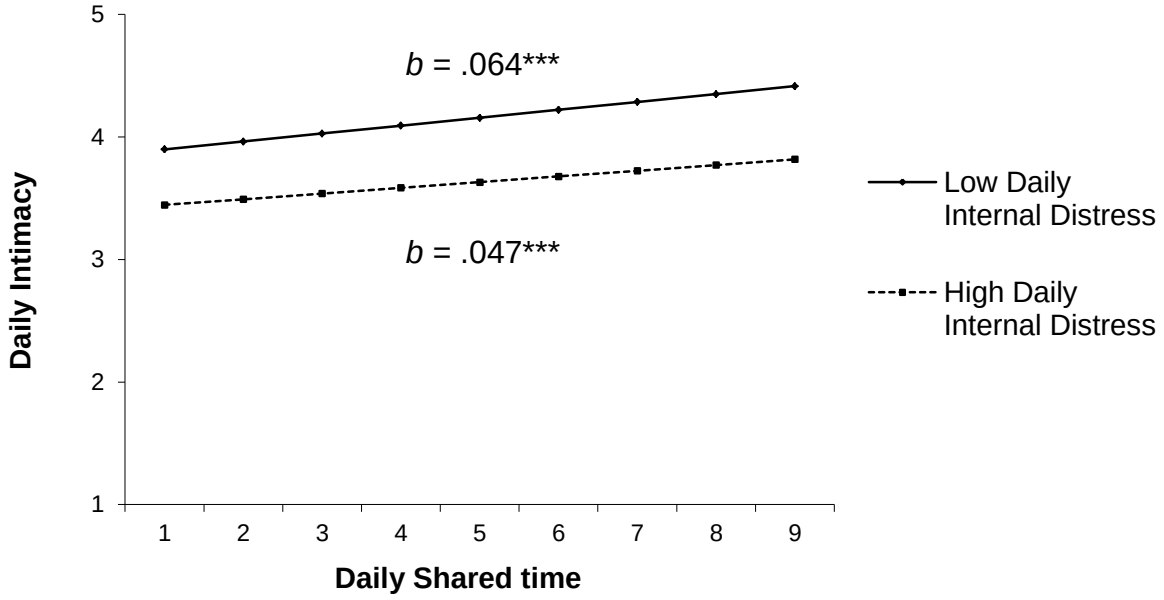
					CI_{95}	
Fixed effects (intercept, slopes)	*Est*	*SE*	*t-value*	*p*	*lower*	*upper*
Intercept (reference = average weekday)	3.894	.061	63.830	.000	3.774	4.016
Level 1 (within-person)						
Shared time (AT)	.055	.007	8.305	.000	.042	.069
Internal distress (ID)	-.135	.008	-17.413	.000	-.150	-.120
Interaction AT*ID	-.005	.002	-2.101	.036	-.009	-.000
Level 2 (between-person)						
Shared time (AT)	.033	.037	0.908	.366	-.040	.106
Internal distress (ID)	-.337	.055	-6.170	.000	-.446	-.228
Interaction AT*ID	.099	.036	2.765	.007	.028	.170
					CI_{95}	
Random effects ([co-]variances)	*Est*	*SE*	*z*	*p*	*lower*	*upper*
Level 1 (within-person)						
Residual *var*(ε_{ij})	.267	.013	21.253	.000	.243	.293
Autocorrelation	.154	.035	4.463	.000	.086	.221
Level 2 (between-person)						
Intercept *var*(u_0)	.289	.049	5.965	.000	.208	.401
Shared time (AT) *var*(u_1)	.001	.001	2.814	.005	.001	.002
Covariance σ_{01}	-.011	.003	-3.282	.001	-.018	-.005
Pseudo R^2 statistics[a]						
R^2_ε	0.36					
R^2_0	0.30					
R^2_1	0.14					

Note. N = 92 women, 1259 diary days, Est = unstandardized estimate. All models accounted for weekend, and relationship length; [a] we quantified the proportion of explained variance due to our set of within- and between-person level predictors following recommendations of Singer and Willett (2003).

Level 1: Within women. As predicted, the conditional main effects of shared time (Hypothesis 1) and internal distress (Hypothesis 2) on the within-person level were significant, such that higher shared time was associated with higher intimacy, and higher internal distress was associated with lower intimacy (see Table 7). Additionally, the two-way interaction of shared time by internal distress (Hypothesis 3) was also significant, $F(1,1074) = 4.414$, $p = .036$. We probed the interaction using +/- 1 SDs below and above the mean for low levels and high levels of internal distress following the methods suggested by Aiken and West (1991). Furthermore, regions of significance were examined using the online interaction tool provided by Dawson (2014). As depicted in Figure 10a, on days when women experienced less internal distress than usual, their intimacy ratings increased as their shared time increased ($b = .064$, $p < .001$). This shows that on days with low internal distress, 1 hour more shared time together was associated with a .064 unit increase in intimacy (1.3% given the 5-point scale). On days with higher than normal levels of internal distress, women's intimacy ratings also increased, but by a slightly smaller amount (.047 units when they spent one additional hour together; $p < .001$, less than 1% given the 5-point scale).

Although these effects are clearly quite small and not that different from each other, they are potentially relevant in this context, given that intimacy develops over time through repeated interactions. Even small differences in day-to-day intimacy could have long term repercussions if those differences accumulate. In addition, exploratory graphing of the within-person slopes on days with low versus high internal distress (Figure 10b) suggests that the variability between women in the association of shared time and intimacy is increased on days with higher distress. In other words, distress appears to impact intimacy processes more for some women than others.

a) Within-Person Effects



b) Visualization of Variability of Within-Person Effects

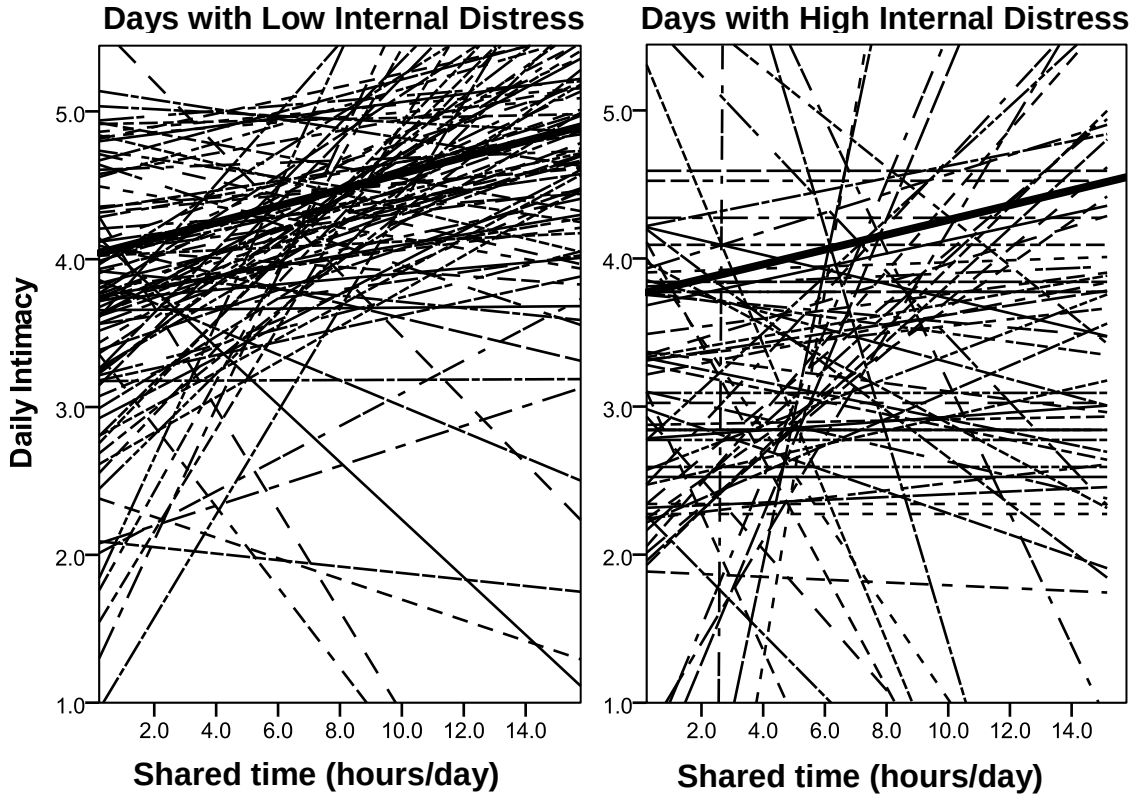


Figure 10. Within-person effects.

Note. For (b) raw data are depicted.
**p < .05. **p <.01. ***p < .001.*

Level 2: Between women. The conditional main effect of aggregated internal distress on average intimacy was significant (b = -.335, SE = .055, $t(84)$ = -6.17, $p < .001$), as was the interaction of aggregated shared time by aggregated internal distress, $F(1,84) = 7.647$, p = .007. We probed the interaction using the same methods as for the within-person effects. As shown in Figure 11, for women with high levels of aggregated internal distress there was a positive association between aggregated shared time and intimacy (b = .130, p = .013). We found no effect for women with low levels of aggregated internal distress; for them, as aggregated shared time increased, intimacy ratings did not change significantly (b = -.064, p = .196). In summary, aggregated intimacy was lowest for women who reported high average levels of internal distress, in combination with spending relatively little time with their spouses compared to other women.

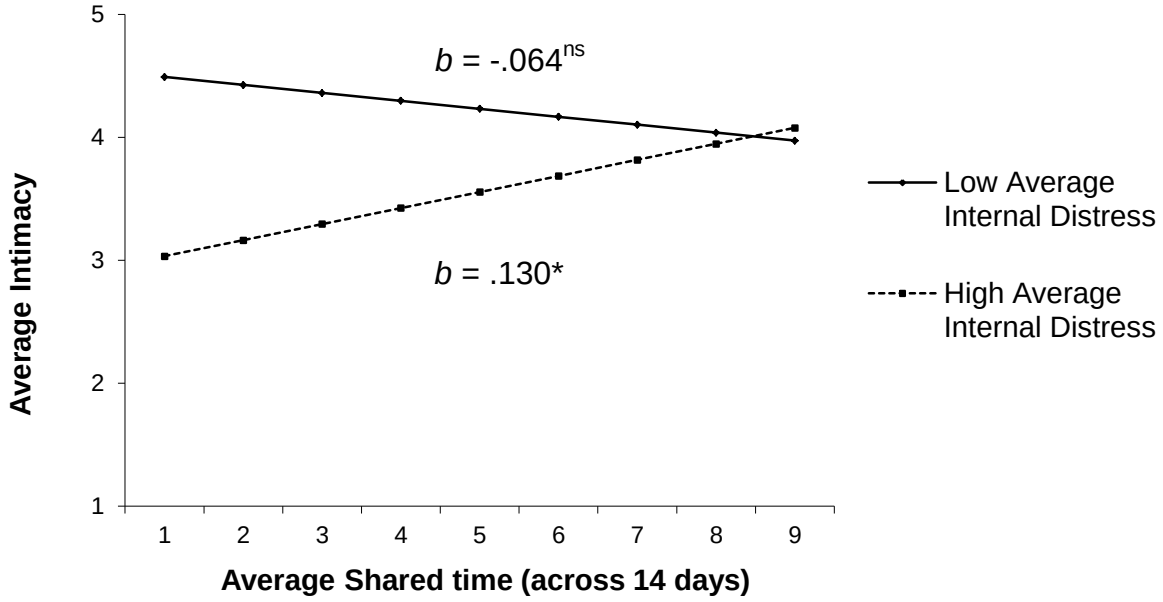


Figure 11. Between-person effects.

Note. ns = non-significant. *$p < .05$. **$p < .01$. ***$p < .001$.

Variance components. As illustrated in Figure 10b, general conclusions about associations between variables were not applicable for all women participating in this study. Allowing for varying slopes of shared time in addition to varying intercepts on level 2 contributed to a better model fit. We found variability between women in average levels of

intimacy ($var(u_0)$ = .289, p < .001) and in average associations with shared time ($var(u_1)$ = .001, p = .005), which co-varied significantly (co$var(u_{01})$ = -.011, p < .001). This implies that even though an hour more of shared time than usual was generally positively related to intimacy, for some women this seemed not to be true. Taking +/- 1 standard deviation, individual slopes varied between .16 and -.05. In sum, although our hypotheses were generally supported , the effects were small and showed notable between-person variability in the association between shared time and intimacy that appeared to increase on days with high internal distress.

Discussion

This study is the first to investigate within- and between-person associations between shared time and intimacy, taking moderating effects of daily internal distress into account. As predicted, we found that on days when women spent more time with their partners than usual, they also reported higher intimacy, but that on days with high levels of internal distress, this association was reduced. These effects were small and highly variable between women, however, suggesting that not all women benefit to the same extent from more time spent with their spouse. At the between-person level, higher average shared time appeared to buffer the negative impact of internal distress on intimacy. Women with both high average distress and low average shared time reported the lowest aggregated intimacy overall. Women with high distress, but extensive shared time, did not differ in their overall intimacy from women in less distressed relationships.

Although our results were in accord with our predictions, daily internal distress reduced the positive relation between shared time and intimacy only to a fairly small extent. Regardless of spousal quarrels or disagreements, spending time together can be seen as an avenue through which daily cohesion and adaptability in a system is maintained (Orthner, 1975; Zabriskie & McCormick, 2001). It might even facilitate successful conflict resolution, as considerable information about couples' feelings becomes transmitted through the

nonverbal channel of behavior (Speer, 1972). This line of reasoning might also explain the result that for women reporting high average internal distress there was a positive association between shared time and intimacy on the between-person level. Women with high average levels of internal distress might belong to a group Gottman (1994) described as 'volatile couples': Those couples frequently engage in passionate disputes whilst at the same time they express high rates of positivity and love. Spending (a lot of) time together might be the strategy of volatile couples to balance negativity with positivity, to make amends for hurt feelings, and enhance their intimacy.

We found substantial variability between women's daily associations of shared time and intimacy, especially in the presence of internal distress, suggesting that complex non-linear mechanisms may be at work. This conjecture is also supported by the inconclusive findings of earlier studies comparing the impact of shared time on relationship outcomes between persons without accounting for possible moderators. Not only overall internal distress, but a variety of hitherto unidentified factors, such as daily mood, individual time needs or preferences, couples' communication skills or contextual settings, etc. may moderate links on the between- or within-person level. In particular, the satisfaction with how shared time is spent might play a crucial role in whether more shared time is apt to enhance couple's intimacy. Further research should aim to clarify for whom, under what circumstances, and how much shared time is required to establish and maintain emotional closeness in an intimate relationship.

Limitations and future directions

Several limitations need to be taken into consideration when interpreting the current results. First, study findings are based on women's perceptions only. Therefore, questions concerning men's perceptions or the interdependence between partners could not be analyzed. Further studies should utilize couple data to allow for conclusions about interpersonal, dyadic processes involving shared time. Second, our data does not allow causal interpretations. Theory suggests that shared time together influences the feeling of closeness towards a

partner, however, the opposite interpretation that higher intimacy motivates couples to spend more time together has substantial merit. Third, the composition of the sample limits the generalizability of results. Women were mainly from the upper-middle class, satisfied with their relationship and experiencing low overall internal distress. Even those, who were considered as having 'high levels' of internal distress reported mean distress levels of below 1 on a scale ranging from 0 to 3. Effects of shared time on intimacy may be very different for unhappy couples. Therefore, further studies with samples consisting of high conflict/ therapy couples have to replicate our results before practical implications with regard to couple counseling can be discussed. Despite those limitations, our results show that the amount of time spent together is a relevant factor for the establishment of intimacy on a daily level.

Conclusion

It is unlikely that there exists a universally appropriate, objective quantum of time that is the key for a happy and satisfying relationship. Nevertheless, taking one's own average as reference, spending more time in the presence of your spouse on a daily basis seems to be associated with more intimacy for most women; therefore, it would be worthwhile to deliberately take the time to emotionally (re)connect, especially on days lacking the feeling of emotional closeness.

General Discussion and Conclusions

10. General discussion and conclusions

The principal goal of the present thesis was to add to the understanding of how spending time together with one's spouse (1) is related to couple's functioning and (2) is altered under the exposure of minor external stress. As a new theoretical framework to systematically address these questions, the Time-Mediation model was presented in Chapter 5 serving three main purposes. First, the model aimed to critically appraise related findings from leisure and stress research and to integrate them in a meaningful way. Second, the model differentiated three dimensions of shared time. Third, the model facilitated empirical verification by formulating testable assumptions.

Three studies were conducted to test specific paths of the Time-Mediation model. In this last chapter, the main findings will be summarized and discussed with regard to theoretical advances to the existing literature. Subsequently, limitations of the empirical contributions of the current dissertation will be highlighted and linked to future research directions. Moreover, the proposed Time-Mediation model will be critically reflected and embedded into an ecological context. Finally, a reflection on practical implications for the professional practice will conclude this chapter.

10.1. Summary of findings

Conclusions of Study I

The cross-sectional results of Study I suggested that the mere quantity of time spent together was not the key factor for women's and men's relationship satisfaction, but rather *how* couples spent time together. Time quality was the main predictor for relationship satisfaction for both genders. This finding matched the argument of Flora and Segrin (1998) who concluded that "without considering the quality of time spent together, joint leisure time cannot uniformly be guaranteed to enhance relationships" (p.717). For men, we did not find any significant effects of time quantity on relationship satisfaction. For women, spending

more time together on the weekend was only *slightly positively* and on weekdays even *negatively* linked to relationship satisfaction (holding time quality constant at a mean level). Whilst these findings were not unanticipated –Aron and others (e.g., Aron & Aron, 1986; Aron et al., 2000; Reissman et al., 1993) also had warned about boredom in intimate relationships due to an excess of each other's company– they still raise a number of issues: First, one might wonder why the majority of couples report time famine and wish for more time quantity (e.g., Gillis, 2001; Jurczyk & Heitkötter, 2012; Roxburgh, 2006), although an increase of the amount of time, in fact, does not seem to be beneficial for intimate relationships. Second, divergent effects for weekend versus weekdays prompt the conclusion that spending time together might serve a specific (potentially compensatory) function on the weekend. Third, gender effects urgently require further clarification. In line with other research (e.g., Holman & Jacquart, 1988; Rhyne, 1981; Smith et al., 1988), shared time seemed to be more important for women than men in our study, explaining three times as much incremental variance in relationship satisfaction.

Moreover, to the best of our knowledge, this was the first study that provided differentiated empirical evidence comparing the mediating role of quantity and quality of shared time within the spillover of external stress on relationship satisfaction. Our results showed that the quality, not quantity, of shared time partially mediated the deleterious effects of chronic external stress on relationship satisfaction for both genders. Women and men who experienced *more* external stress did not spend *less* time together, but engaged in *fewer* shared 'we-ness enhancing' activities, and thus, were less satisfied with their relationship. The non-significant effect of time quantity was somewhat contradictory to what one might expect considering the substantial time stress and time scarcity couples report (e.g., Gillis, 2001; Jurczyk & Heitkötter, 2012; Roxburgh, 2006). However, it can be brought into context with studies showing that, despite of a reverse subjective perception, couples do not spend less but more time together nowadays than in prior decades (e.g., Robinson & Godbey, 1997;

Voorpostel et al., 2010). An alternative explanation for the finding concerns the diversity of our sample: Associations between external stress and time quantity may exist but be hidden because of considerable differences between participants in the mean amount of time they spent with their partners (see also Huston et al., 1986; Orthner, 1975).

Conclusions of Study II

Results of the two parts of Study II focusing on time quantity and the intensity of communication during shared time (as one specific aspect of time quality) unveiled a somewhat more differentiated perspective. In part A, comparisons between couples emphasized that both partners' satisfaction with shared time depended to a large extent on the level of *one's own* and the *partner's* self-disclosure during time spent together, but was also positively related to the quantity of shared time. We found marginally significant interaction effects, suggesting that it were the parents who perceived the level of self-disclosure during shared time as *low*, for whom more time was most positively related to satisfaction with shared time. For couples who engaged more often in self-disclosure when they saw each other, time quantity appeared to be less important for their satisfaction with shared time. Similarly in part B, on the intra-personal level, women reported higher satisfaction with shared time on days when they spent more time with their partners than usual (controlling for their own average level of self-disclosure). However, on days when they disclosed *more* thoughts and feelings than on average, time quantity was *not* associated with satisfaction with shared time. The moderation effects were rather small and only marginally significant but still evident in both samples and levels of analysis. These findings were somewhat surprising and contradictory to our assumptions and past research (Flora & Segrin, 1998; Holman & Jacquart, 1988; Orthner, 1975). Holman and Jacquart's (1988) conclusion that "The family (or couple) that plays together, stays together (…) if they have a great deal of communication while they play" (p. 76) might have to be amended if our results can be replicated in further studies. Our findings would suggest that as long as couples have a great deal of

communication while they play, large(r) amounts of playing are not necessarily a requirement to stay together. Couples that effectively use mutual self-disclosure during interactions might need less time investment to develop and maintain the feeling of intimacy (cf. Laurenceau et al., 2005; Lippert & Prager, 2001; Reis & Shaver, 1988). This, in turn, might result in 'spare' time that also could be allocated to individual activities without impairing the intimate relationship, thus maintaining a balance between the conflicting priorities of self-fulfillment and shared time (cf. Beck & Beck-Gernsheim, 2002). For couples who engage less in self-disclosure or need more time to feel at ease to open up to the partner, time quantity might be a prerequisite for sharing personal thoughts and feelings, particularly in times of stress when partners first need to down-regulate their personal stress levels.

The empirical findings of the daily diary investigation conducted in part B of Study II revealed two additional important insights about underlying intraindividual processes for women[13]. Firstly, results supported the main assumptions made by the Time-Mediation model: Negative spillover effects between various types of external stress and satisfaction with shared time were partially mediated –with different magnitude– via reduced *time quality and time quantity* on a day-to-day basis, adding to the discussion initialized in Study I. More external stress unquestionably deteriorates time quality. Mechanisms resulting in *less* time together due to chronic external stress as proposed by Bodenmann (2000) are highly situation-specific intra-personal processes (cf. Lazarus & Folkman, 1984), which are not easily detectable in interpersonal comparisons, but can be uncovered when analytical strategies are used that allow to monitor individual's behavior during multiple specific situations. We did not find significant variability for the average associations between external stress and self-disclosure or time quantity. This suggests that even though average stress levels and shared time differed greatly, once one's average individual daily stress level was exceeded, time quality and time quantity was impaired in a similar manner for all women. Effects were less

[13] As male partners did not participate in this part of the study, inferences about men cannot be drawn.

homogenous for the positive associations between time quantity or self-disclosure and satisfaction with shared time. Women differed substantially in the extent to which more time or more self-disclosure, respectively, actually enhanced their satisfaction with shared time: Some women benefited a lot from an additional hour per day with the partner, for others it was unrelated to their satisfaction, and for a few it even resulted in less satisfaction. Further research should clarify which individual, couple or contextual factors are able to account for this interindividual variability. In the context of external stress, for example, it is easily conceivable that the ability to cope together effectively with stressful encounters as a couple (dyadic coping), plays a major role in whether shared time is experienced as satisfactory or not.

Secondly, effects of time quantity and self-disclosure seemed to differ for weekdays in comparison to days of the weekend also on an intra-personal level. Satisfaction with shared time was more susceptible to variability of time quantity on weekdays: One hour more time together than usually on a weekday was more strongly associated with women's satisfaction with shared time than an increase of one hour on Saturdays or Sundays. This finding can be explained by the fact that it was the *weekend* when women spent the most time with their partners –on average more than nine hours. So an hour more on a Saturday or Sunday made less of a difference than an hour more on a weekday with an average shared time budget of approximately three hours. On the contrary, when women reported low self-disclosure on the weekend compared to a similarly low level on a weekday, it was more detrimental for their satisfaction with shared time. More empirical evidence is needed replicating these effects in other (male) samples. However, the findings from Study I and Study II point towards the direction that –at least for women– weekends seem to be important to reconnect. The findings of Study I and Study II highlight that in an attempt to yield a comprehensive understanding of mechanisms involving shared time (1) the level of analysis or time frame (within/ between

persons or long-term/ short-term), and (2) the day of the week deserve consideration in future investigations *and* theory development.

Conclusions of Study III

The results of Study III focusing on time quantity and the degree of contention or internal distress (one specific aspect of time quality) exemplified that effects might differ intra- and interindividually. On a daily basis on the within-personal level, the degree of daily internal distress impaired associations between the quantity of shared time and intimacy. Generally, women reported increased intimacy on days when they spent more time than usual with their partners given a mean level of internal distress. More shared time was *still* but *slightly less* positively associated with intimacy on days when they experienced high levels of internal distress for most women. Again, we found substantial variability with regard to this effect. For some women, more time was always positively related to intimacy regardless of the time quality, for others it was unrelated or negatively associated to intimacy on high conflict days. Taking into consideration that the participating women were in satisfied relationships und reported very low levels of internal distress, it can be assumed that effects will be substantially exaggerated in high-conflict couples.

On the between-personal level, we found a somewhat contrasting moderating pattern: For women who reported '*higher'* average levels of internal distress there was a *positive* association between shared time and intimacy, but average intimacy ratings did not change significantly with an increase of time quantity for women with low levels of average internal distress. If women who reported high average internal distress levels also reported to spend a lot of time together with their partners at large, they did not differ in their overall intimacy ratings from women in less distressed relationships. Spending a lot of time together might offer more opportunities to make amends for hurt feelings and enhance intimacy, counterbalancing negativity with positivity. According to Gottman's balance theory of marriage (1993, 1994), it is the couple's ability to balance positive and negative interactions

that matters most for marriages, rather than the absolute frequency of adverse interactions per se. Research testing Gottman's premise supported this view (e.g., Bertoni & Bodenmann, 2010; Bodenmann, Meyer, Binz, & Brunner, 2004; Gottman, Coan, Carrere, & Swanson, 1998). For example, Gottman and Levenson (1992) reported that regulated couples outperforming negativity by positivity were at lower risk of starting the cascade towards divorce than couples characterized by more negative than positive interactions. Williams (1979) could show that highly distressed couples seeking therapy perceived a higher proportion of their shared time as negative *and* spent less time together than happy couples.

Whether it is a decrease in shared time that is causing an imbalance in positivity to negativity, or whether it is not rather vice versa, remains to be tested, but it stands to reason that there is a link. Thus, distress may dampen the immediate positive influence of time together on intimacy, but aggregated over the long run, spending more time together may provide more opportunities for conflict resolution and help couples overcome the negative impact of distress on intimacy (see also Gottman & Krokoff, 1989).

In summary, the results of the empirical contributions described in the current thesis (see Table 8 for an overview of the main findings) provide noteworthy evidence in favor of the proposed Time-Mediation model and lead to seven main conclusions, which merit emphasis, but require replication and elaboration in further investigations:

(1) Time quantity, time quality and satisfaction with shared time should be distinguished as they are differently associated with relationship outcomes.
(2) *How* couples spend their time together, rather than *how much* time is spent is most accountable for couples' satisfaction with shared time and other relationship outcomes (primacy of quality).
(3) Dimensions of shared time interact: Given low time quality, larger amounts of time may be needed to compensate.

(4) Links between the dimensions of shared time and relationship outcomes appear to be different on weekdays versus on the weekend (day of the week matters).

(5) There is substantial variability between persons in the degree to which time quantity and time quality are related to relationship outcomes.

(6) External stress spills over into the couple relationship via shared time, but *not all types* of external stress are detrimental for all dimensions of shared time.

(7) Mechanisms involving external stress, dimensions of shared time and relationship functioning are not the same on the *within-* and the *between- personal* level.

Table 8.

Overview of the main findings

	Study I		Study II			Study III	
			Part A		Part B		
	Women	Men	Between-persons		Within-women	Between-women	Within-women
			Actor	Partner			
External stress → AT	ns.	ns.			**neg.**[d] /ns.[e]		
External stress → TQ	**neg.**	**neg.**			**neg.**		
External stress → SAT					**neg.**		
External stress → RF[a]	**neg.**	**neg.**					
AT → RF[a]	**neg.**[b] **/pos.**[c]	ns.				**pos.**[f]	**pos.**
QT → RF[a]	**pos.**	**pos.**					
AT → SAT			**pos.**		**pos.**		
QT → SAT			**pos.**	**pos.**	**pos.**		
AT x QT → SAT			**(neg.)**	ns.	**(neg.)**		
Mediation via AT	**no**	**no**			**yes**[d] **/no**[e]		
Mediation via QT	**yes**	**(yes)**			**yes**		

Note. pos. = positive effect, neg. = negative effect, ns. = non-significant, significant effects are depicted in bold, marginally significant effects are in parentheses; AT = amount of time (quantity); QT = time quality; SAT = satisfaction with shared time; RF = Relationship functioning:
[a] In Study I = relationship satisfaction, in Study III = intimacy; [b] for weekdays; [c] for days of the weekend; [d] for work-related stressors and daily hassles; [e] for child-related stressors; [f] for women reporting high internal distress levels.

10.2. Limitations and implications for future research

Several limitations may have influenced the results of our research. As many of them have already been addressed in the respective discussion sections in Chapters 7 to 9, solely the caveats spanning across all empirical studies with regard to the Time-Mediation model will be focused in this section and linked to future research avenues.

10.2.1. Samples and study designs

A number of limitations associated with the participating samples and study designs deserve closer attention. Firstly, most of our samples (with the exception of Study II A) consisted of highly educated participants which were rather satisfied with their relationship and reported relatively low levels of external stress. The daily diary data of Study II B and Study III represented women's perceptions only. Therefore, within-personal mechanisms for men or the interdependence between daily processes in partners with regard to shared time could not be analyzed. It would be premature to generalize the findings to other populations (or men, specifically) without further empirical evidence. Future studies should investigate the effects of shared time for a wider range of couples (e.g., couples with young children, couples in long-distance relationships, adolescent couples, couples exposed to substantial external stress, couples living in a different cultural setting, etc.) to validate whether the same or additional factors predict satisfaction with shared time. In particular, monitoring shared time during major life transitions (e.g., retirement, change from a proximal to a long-distance relationship, etc.) might extend our knowledge of whether and how couples adapt their shared time routines and preferences.

Secondly, none of our studies monitored the impact of the dimensions of shared time on relationship functioning longitudinally. Although theory offers a rationale for the proposed causal links and statistical analyses of association can provide evidence of mediation pathways (see Shrout & Bolger, 2002), reported concurrently assessed statistical effects between external stress, shared time, and relationship satisfaction cannot be interpreted as

causal effects. Definite conclusions about causality involving shared time are not legitimate until results from additional studies adopting experimental and longitudinal designs are available.

Thirdly, the burden of extensive or repeated queries places substantial demands on participants potentially leading to reactance or non-response (cf. Bolger, Davis, & Rafaeli, 2003). Fortunately, extremely low rates of missing values in our studies suggested that compliance with procedures was excellent. A similar concern with respect to daily diary studies often is that the act of diary filling itself may entail alternations in the behavior one intents to monitor (cf. Bolger et al., 2003). To test whether this applied to our diary study (Study II B and Study III) we included two items assessing self-perception of behavioral change. Eighty-two percent of women indicated being more aware of how their family spends time together after completion of the study. However, only 2 women reported having altered their family time routines because of keeping a diary. Following the arguments of Litt, Cooney, and Morse (1998), who reported similar results in their ecological momentary assessment of drinking urges of treated alcoholics, the increase in awareness is unlikely to have influenced the time variables of interest in the presented analyses. Notwithstanding it cannot be ruled out that response biases have occurred, as all analyses relied on self-report measures.

10.2.2. Operationalization

Further limitations concern the operationalization of the main constructs, in particular, with regard to the dimensions of shared time. Most often single item measures were used that might have limited the reliability of the variables. Gardner, Cummings, Dunham, and Pierce (1998) compared different measures of psychological constructs and found that well-developed single-item measures might be just as appropriate as multiple-item measures. However, a more sophisticated, encompassing and standardized operationalization of time quantity, time quality and satisfaction with shared time would be desirable and should be

developed in future work. Furthermore, future research should use the advantages modern technology has to offer for assessing objective measures taken during real-time. For example, any smartphone nowadays provides location and time information one could use to measure how much time partners have spent in spatiotemporal proximity without having to rely on biased self-report. In our studies, participants were simply asked to report the amount of time spent together with their partners while being awake but were not explicitly prompted to also include time talking on the phone or via skype. This circumstance might have limited the representativity of our results. The use of ambulatory assessment like electronic diaries (e.g., EAR, Mehl & Holleran, 2007) would allow scientists to gather objective data in naturalistic settings in addition to self-reporting.

Further characteristics of time shared together emerged to be related to satisfaction with shared time suggesting that the list presented in Chapter 2.2 is far from being exhaustive. For example, sex and affection was identified and included as a we-ness enhancing activity in the time quality measure in Study I, and had already been reported to be one of the five most favorite recreational activities by 45% of the husbands and 26% of the wives in a study conducted by Mancini and Orthner (1978) in the late seventies. The degree of sexual affection during shared time is a promising additional characteristic that should be included to describe time quality (see also Dyck & Daly, 2006); ample evidence exists for a positive link between sexual affection and relationship satisfaction (for reviews see Christopher & Sprecher, 2000; Sprecher & Cate, 2004).

Future research examining whether 'temporal asynchrony' exists within a couple may provide additional explanations why couples (and partners) differ in their overall evaluations of shared time and reveal important starting points for taking time-related preventive measures. For example, the manner in which partners orientate themselves in the temporal dimensions of their lives (e.g., present hedonistic, future oriented, past-negative, etc.)

(Zimbardo & Boyd, 1999)[14] may greatly differ, or partners may function best during other times of the day having divergent biological rhythms (e.g., early bird vs. night owl), or just prefer a different pace of life (Fraenkel, 1994; Fraenkel & Wilson, 2000). All the temporal dimensions above might cause temporal asynchrony and affect their overall relationship functioning on the long run.

10.2.3. The Time-Mediation model under close scrutiny

Persuasive evidence in favor of the proposed Time-Mediation model was found even if not all pathways were considered in the empirical studies presented in this thesis. For example, the unreported link from satisfaction with shared time to relationship functioning was also tested. In all data sets analyzed, satisfaction with shared time was at least moderately positively related to the relationship outcome (e.g., relationship satisfaction, intimacy). Nonetheless, it has to be acknowledged that the Time-Mediation model might oversimplify a number of processes. For example, the detrimental effect from external stress on dimensions of shared time might itself be mediated by (a) a change in *individual* time, or (b) negative affect, as some stress-theoretical models suggest (e.g., family stress model of economic hardship). For example, in stressful times, not only the shared time might be affected but also one's individual free time, potentially causing a 'time-unbalance' and leading to less satisfaction with shared time. In addition, studies showing that high external stress increases negative affectivity (e.g., Conger et al., 2002; Repetti, 1989) support the notion that a change in mood or affect could be the underlying mechanism that partly explains why time quality might be more impaired than time quantity by external stress.

Most importantly, substantial variability of the effects between persons (Study II B and Study III) and diverging results on the within and between personal level of analysis (see Study III) suggest that individual, dyadic or contextual factors are altering associations

[14] Also referred to as time perception describing "the often nonconscious process whereby the continual flows of personal and social experiences are assigned to temporal categories, or time frames, that help to give order, coherence, and meaning to those events" (Zimbardo & Boyd, 1999, p. 1271).

between central variables. For example, in Study III we examined the internal distress level as a varying aspect of time quality (i.e. the degree of contention or conflict during shared time). On the daily level, that seems to be an appropriate proceeding. On the aggregated between-personal level, however, one could argue that internal distress should better be conceptualized as a (relatively stable) couple characteristic moderating the link between shared time and relationship functioning.

10.3. The Time-Mediation model within an ecological context

Our empirical findings but also the system theory of Bronfenbrenner (1979) or, more specifically, Huston's social ecological approach of marital unions (2000) support the notion that mediating mechanisms of shared time are embedded and therefore should be studied within a broader ecological context (as illustrated by the grey circles in Figure 12). Huston (2000) advised current research to take into consideration that "the individual spouses, including their psychosocial and physical attributes, as well as the attitudes and beliefs they have about each other and their relationship" should be viewed as a marital system within a larger network of close relationships and macrosocietal forces (p. 298). His framework provides a fruitful approach for understanding marital processes also within the Time-Mediation model: (a) individual characteristics (e.g., gender, individual skills, need for time, time perception, attributions, etc.), (b) couple characteristics (e.g., dyadic skills, communication skills, stage of marital career, marital distress level, difference in time perceptions, etc.), and (c) contextual or societal factors (e.g., family support, cultural norms, etc.) are likely to alter the associations between all main variables in the proposed model. For example considering individual characteristics, partners with high individual coping skills might be able to successfully down-regulate external stress and the related negative affectivity by taking some time for themselves, hence spending less time with the partner, but preserving the remaining shared time from qualitatively deteriorating; whereas partners with low individual coping skills might show more anger and negative affectivity, impairing not so

much the quantity but rather the quality of shared time. Looking at couple characteristics, Williams (1979) could show that happy and distressed couples (in marital therapy) differed in the total amount of time spent together, and that time perceived as negative made up a significantly higher proportion of the overall shared time for distressed couples. Furthermore, support from grandparents on the contextual level has been identified as a prominent factor that enables couples with children to spend more dyadic 'quality time' without the offspring present (Dyck & Daly, 2006). In summay, individual, couple and contextual characteristics are likely to moderate (a) the effects of external stress on shared time, (b) the interplay between the dimensions of shared time, and (c) the effects of shared time on relationship functioning, respectively. To shed light on *how much* time spent in *what way* is needed for *which couple* to maintain a healthy and stable relationship, further research is required to systematically test mechanisms involving couple time considering the ecological context.

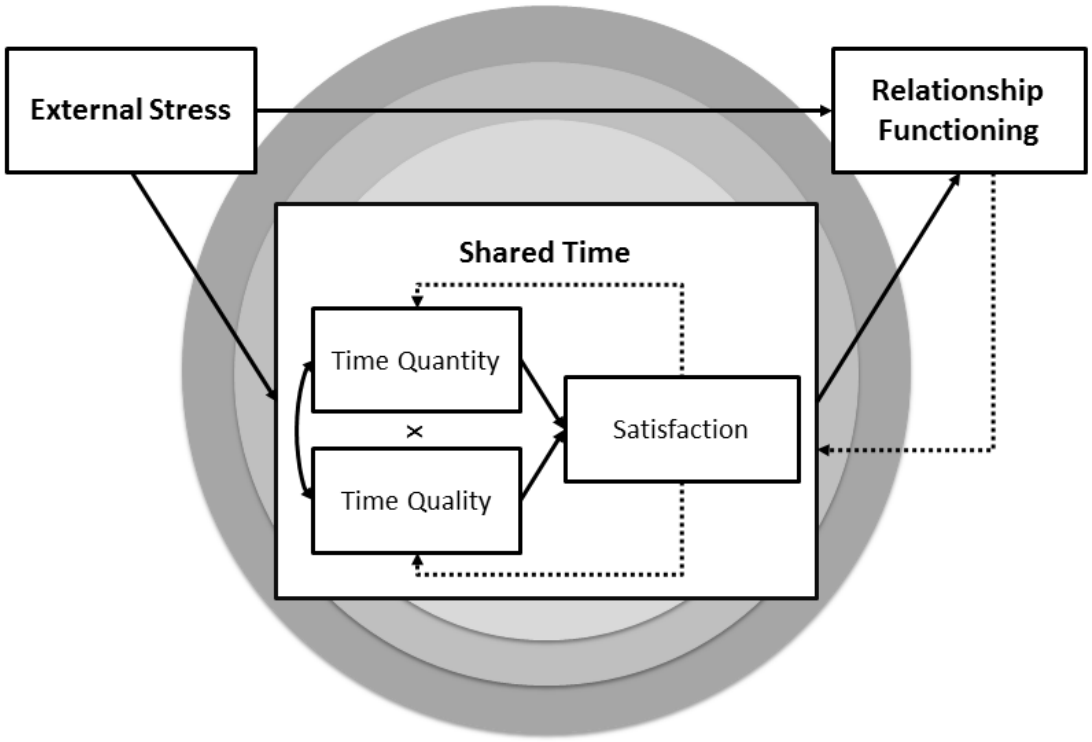


Figure 12. The Time-Mediation model within an ecological context.

10.4. Implications for professional practice

The findings of the current thesis are not only of scientific interest but have several practical implications for couples, couple counselors or therapists, and policy makers.

10.4.1. Recommendations for couples

Even though we still know only little about how much time spent in what way is satisfying for which couples, our findings support the notion that deliberately taking *time for mutual self-disclosure* may prevent both partners' satisfaction with shared time from deteriorating, especially on a stressful day when time is scarce. Scheduling 'couple time' exclusively focusing on one another may be only one pathway to maintain a satisfying intimate relationship. In addition, rather than only counting on shared special events and activities out of the ordinary, couples may be well advised to make the best use of the time that they have got on an everyday basis (see also Kremer-Sadlik & Paugh, 2007 who made similar suggestions with regard to family time). Everyday routines –even ordinary housework– are often more enjoyable when they are done in the presence of a partner (Sullivan, 1996). Our findings imply that as long as couples succeed in maintaining a certain level of time quality (within reason to life circumstances and needs), it might not need *large(r) amounts* of shared time to emotionally connect. It is unlikely that there exists a universally appropriate, objective quantum of time that is the key for a happy and satisfying relationship. Opportunities and preferences of spending time together may vary on a variety of situational (e.g., day of the week), individual (e.g., gender; Crawford et al., 2002), dyadic (e.g., distance apart; Crystal Jiang & Hancock, 2013) and contextual factors (e.g., social support providing childcare; Dyck & Daly, 2006). Additionally, these preferences are likely to change over the course of the relationship (e.g., Orthner, 1975), especially during times of stressful life transitions (e.g., Claxton & Perry-Jenkins, 2008). Therefore, couples may benefit from deliberate and regular (re-) negotiations about the allocation of the limited resource time to maintain in a mutually satisfying equilibrium.

Even though time quality seems to be the primary factor for couples' satisfaction, one cannot hide the fact that time quantity also matters for relationships. As our findings show, spending more time together than on usual days is related to slightly more intimacy, even if some of the time is characterized by internal stress or conflict. In particular volatile couples (see Gottman, 1993) might benefit from more shared time as it provides more opportunities to counterbalance negativity with positivity.

10.4.2. Recommendations for couple counselors and therapists

When working with highly distressed couples, counselors and therapists should bear in mind, however, that just increasing the quantity of shared time without considering the quality does not guarantee an enhancement of partners' relationship satisfaction. Not like the mildly internally 'distressed' couples in our studies who seemed to be able to counterbalance negativity with positivity given a greater time budget, highly distressed couples whose interactions are characterized by high levels of negativity might need professional help to (re-)experience shared time as rewarding. Therefore, an advisable strategy in couple therapy is to establish and increase positivity (reciprocity training) early on in the therapy process (see Bodenmann, 2004).

When working with couples experiencing high levels of chronic external stress two steps may be a promising avenue to help them preserve shared time from deteriorating: (1) increasing their awareness of how external stress impinges on couple's time together by psycho-education, and (2) strengthening their skills to effectively cope with external encounters together as a couple (dyadic coping). In some relationship education programs for couples this focus has been integrated and couples are thought about the importance of shared time as a basis for mutual self-disclosure and dyadic coping. There is convincing evidence that the enhancement of stress-related self-disclosure and dyadic coping are promising and that relationship satisfaction can be improved in community couples (Bodenmann, Pihet, Shantinath, Cina, & Widmer, 2006), in couples dealing with financial strain (Falconier, 2014),

in couples exposed to high job stress (Schaer et al., 2008), or couples dealing with cancer (Heinrichs et al., 2012; Traa, De Vries, Bodenmann, & Den Oudsten, 2014). Further research is needed to gain a deeper understanding of the role of external stress and shared time, so that suitable time-centered interventions can be integrated in the stress-related relationship education programs. For example, Fraenkel and Wilson (2000) suggests a variety of time-centered exercises that help couples build awareness about temporal patterns, affirm acceptable, or alter unsatisfactory ones.

In addition, studying the mechanisms involving shared time in couples with one or both partners suffering from a psychological disorder might be an important future avenue. Personality disorders (e.g., borderline personality disorder) and internalizing psychological disorders, such as anxiety or depression, may have severe impact on *how* couples spend time together. For example, depressive symptomology has been conceptualized as both, a potential cause and consequence of interpersonal stress (for a review see Liu & Alloy, 2010). According to Hammen's (1991) stress generation model, depressed people are active agents in the creation of depressogenic life circumstances, most likely by also turning shared time into a less rewarding and satisfying experience for both partners. Depressed partners are shown to employ maladaptive cognitive strategies (e.g., more negative attributions; Walper, 2014), perceive and exhibit less support behaviors (e.g., Davila, Bradbury, Cohan, & Tochluk, 1997), and engage in less capitalization (Horn, Milek, Brauner, & Maercker, submitted) impairing both partner's relationship satisfaction on the long run. If future studies could show that couple based interventions addressing the enhancement of time quality can prevent the partners' relationship quality from deteriorating, it would underscore once more the indication of couple's therapy for the treatment of individual psychiatric disorders (Baucom, Whisman, & Paprocki, 2012).

10.4.3. Recommendations for employers and policy makers

As work and family roles are closely interconnected (Pleck, 1977) and stress may spillover from one domain into another (cf. Ford, Heinen, & Langkamer, 2007), not only the couple but also employers and policy makers are asked to preserve the opportunities for shared time. Working long hours (European Commission, 2004) and caring for children (e.g., Hamermesh, 2000; Lenz, 2009; Roxburgh, 2006) are two principal factors reducing the amount of shared time.[15] Meeting the conditions for flexible working hours in accordance to family needs for both, women and men, and the establishment of generally greater 'time sovereignty' of employees on a macro level is one important step towards helping couples 'doing (family) time' (Jurczyk, 2009) during the week. Additionally, our findings point towards the direction that couples –due to spending less time during workdays– use the weekends to reconnect. Similarly, Hahn, Binnewies, and Haun (2012) could also show that absorption in joint activities with the partner during the weekend predicted increased positive affect (vigor, joviality, serenity) at the beginning of the following work week. Hence, Saturdays and Sundays should be safeguarded from work demands, so that couples can use the weekends to make up for what is missed on shared time during the week, in quantity and quality.

„Sie lernten sich näher kennen, und eines Tages fragte sie ihn, was denn das Wertvollste, das Kostbarste sei, das er ihr geben könne. Rolf überlegte lange. Dann sagte er: «Meine Zeit.».“

Yvonne Eisenring, (2014)

[15] Well aware of the challenge of ensuring the compatibility of family and career, the German Federal Ministry for Family Affairs (2012) published a working paper dedicated to 'family time' just recently.

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APPENDIX

ADDITIONAL ANALYSIS: SHARED TIME PROFILES

In addition to the analyses presented in Chapter 8 (Study IIA), we applied an exploratory approach to identify different shared time-profiles between couples by analyzing the amount of shared time (quantity) and the frequency of engagement in we-ness enhancing activities (quality). The twoStep-cluster analytical procedure implemented in SPSS was used and resulted in three clusters (see Figure 13) with a good fit silhouette measure of cohesion and separation. Cluster 1 (n = 15) was characterized by a significantly higher average amount of time spent together during weekdays than the other two clusters and a high engagement in we-ness enhancing activities. A third of the couples belonged to Cluster 2 (n = 36), which was characterized by a similarly high time quality as in Cluster 1, despite the large difference in time quantity. The majority of couples (n = 52) was sorted into Cluster 3. This cluster was characterized by a significantly lower engagement in we-ness enhancing activities than in Cluster 1 or 2, while quantitatively not less shared time spent together than in Cluster 2.

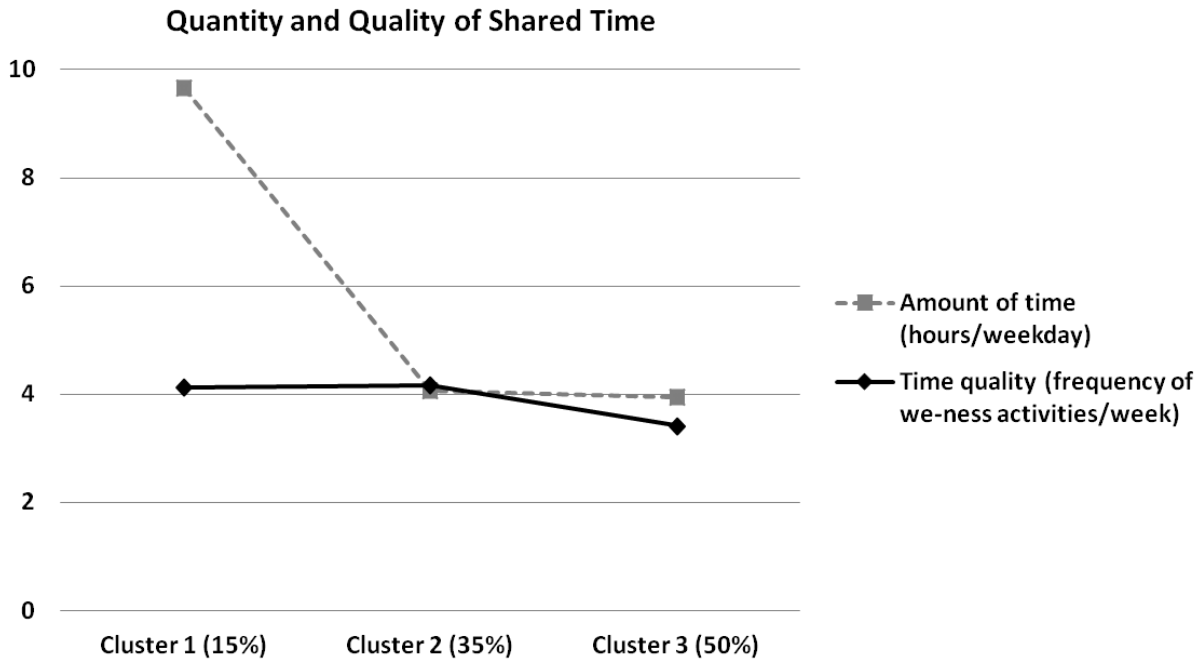

Figure 13. Results of a cluster analysis distinguishing three shared time profiles.

Couples within the three clusters did not differ with regard to socio-demographic characteristics such as age, relationship duration, marital status, weekly working hours, income, and number or mean age of children. Additionally, couples between the three clusters did not vary significantly in the amount of reported time problems (i.e. problems because of asynchronous daily routines) or overall chronic external stress levels (graph not shown). However, we found significant differences between the clusters with regard to satisfaction with shared time for both genders (see Figure 14), various dimensions of female and male relationship functioning (see Figure 15) and the level of dyadic skills (see Figure 16). The couples in *Cluster 3* proved to be the high risk couples for most variables of interest. The results of the respective tests of significance for the graphs depicted in Figures 13 to 16 are presented in Table 9. Further research should focus on the 'resilient' couples in Cluster 2. Knowing more about *how* they manage *to use their limited time budget effectively* to maintain their relationship from deteriorating might reveal important information for the development of preventive measures and therapy interventions.

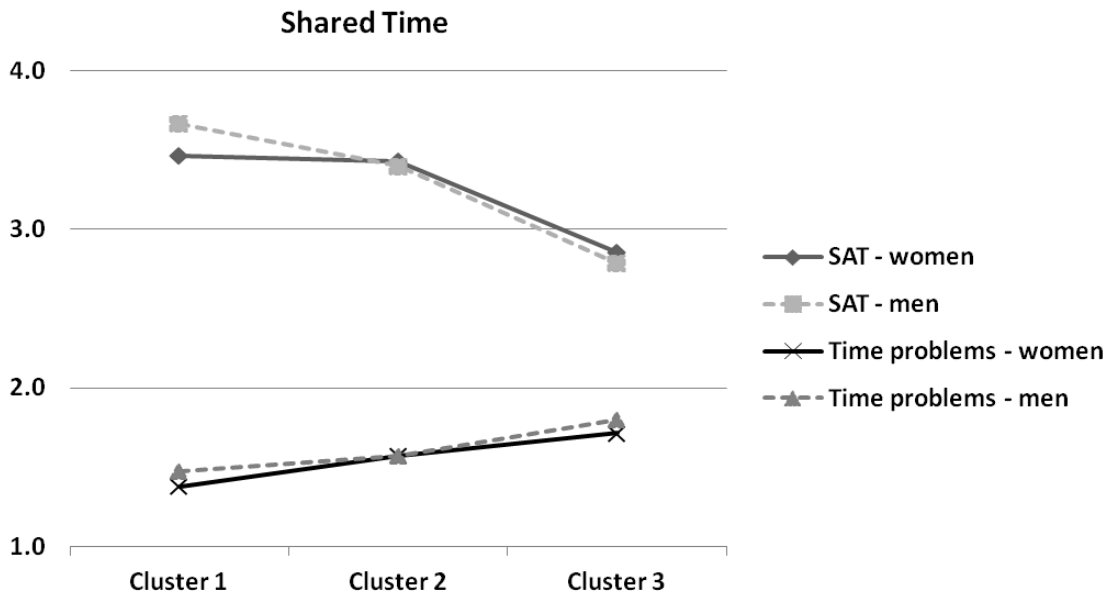

Figure 14. Time clusters by comparison (time-related problems and satisfaction with shared time).

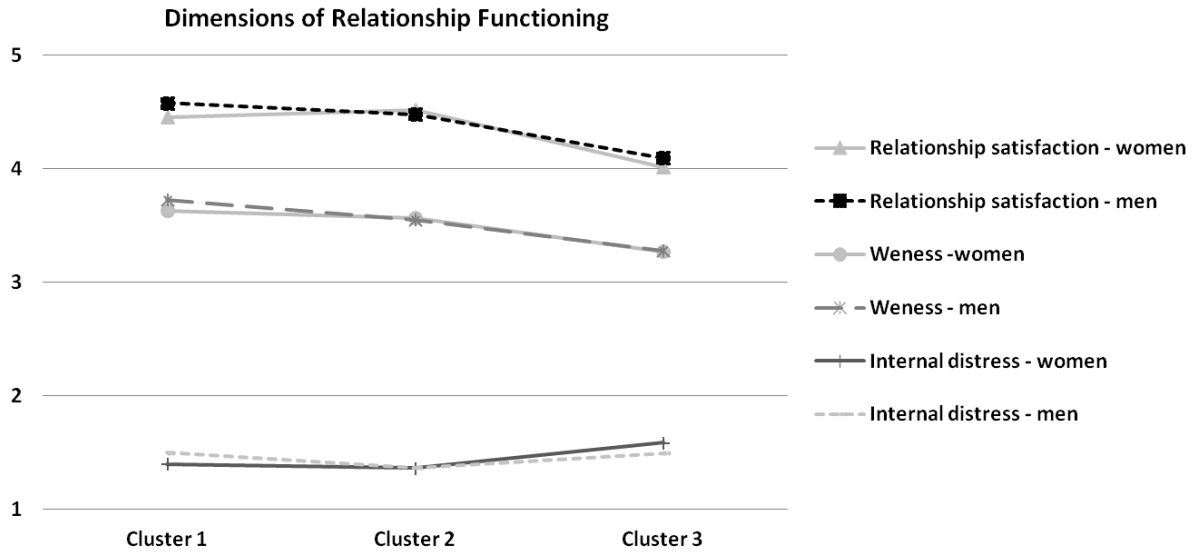

Figure 15. Time clusters by comparison (relationship functioning).

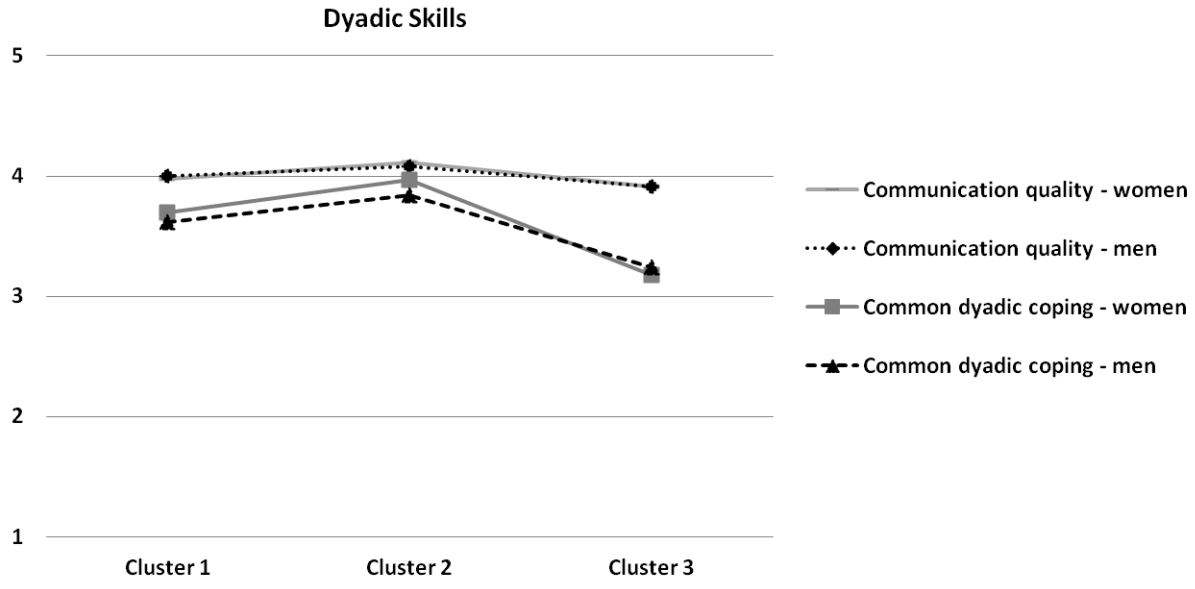

Figure 16. Time clusters by comparison (dyadic skills).

Table 9.

Comparisons of time clusters: Tests of significance

	Significant differences between clusters	
	Women	*Men*
Amount of time (Time quantity)	C1 vs. C2 (*) C1 vs. C3 (*) C2 vs. C3 (ns)	
Time quality	C1 vs. C2 (ns) C1 vs. C3 (*) C2 vs. C3 (*)	
Satisfaction with shared time (SAT)	C1 vs. C2 (ns) C1 vs. C3 (*) C2 vs. C3 (*)	
Time problems (i.e. problems because of asynchronous daily routines)	C1 vs. C2 (ns) C1 vs. C3 (ns) C2 vs. C3 (ns)	
Relationship satisfaction	C1 vs. C2 (ns) C1 vs. C3 (*) C2 vs. C3 (*)	
We-ness	C1 vs. C2 (ns) C1 vs. C3 (*) C2 vs. C3 (*)	
Internal distress	C1 vs. C2 (ns) C1 vs. C3 (ns) C2 vs. C3 (*)	C1 vs. C2 (ns) C1 vs. C3 (ns) C2 vs. C3 (ns)
Communication quality	C1 vs. C2 (ns) C1 vs. C3 (ns) C2 vs. C3 (*)	C1 vs. C2 (ns) C1 vs. C3 (ns) C2 vs. C3 (ns)
Common dyadic coping	C1 vs. C2 (ns) C1 vs. C3 (*) C2 vs. C3 (*)	C1 vs. C2 (ns) C1 vs. C3 (ns) C2 vs. C3 (*)

Note. The Bonferroni correction method was used; *$p < .05$ – difference significant; ^{ns} $p > .05$ – difference non-significant.

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SELECTED PUBLICATIONS AND TALKS

Publications based on this dissertation

Chapter 7 is based on a research paper currently under revision:

Milek et al. (submitted). Deleterious effects of stress on one's time together and relationship satisfaction.

Chapter 8 will be submitted as research paper until the defense on February 25th 2015:

Milek et al. (in preparation). Predicting satisfaction with parents' shared time: The interplay of time quantity, self-disclosure and external stress.

Chapter 9 is based on a research paper currently under revision:

Milek et al. (submitted). Within- and between-person effects of couple's shared time on women's intimacy.

Talks based on this dissertation

Milek, A., Goetz, C. J., & Bodenmann, G. (2014). Wenn Stress die gemeinsame Zeit in der Partnerschaft verdirbt. [When stress deteriorates couple's time together]. Paper presented at the 49th conference of the German Society of Psychology (DGPs), 21. – 25. September, Bochum, Germany.

Milek, A., Goetz, C. J., & Bodenmann, G. (2013). No time for the partner – Does shared time matter for couples' intimacy? Paper presented at the 13. Biannual Congress of the Swiss Psychological Society (SGP), 11. - 12. September, Basel, Switzerland.

Milek, A. Goetz, C. J., & Bodemann, G. (2013). Not enough time for dyadic coping? Poster presented at the Sixth International Meeting of Stress and Dyadic Coping - Couples Coping with Cancer-Related Stress: Translating Research to Practice, June 21, Louisville, KY, USA.

Milek, A., Goetz, C. J., & Bodenmann, G. (2013). Time quality vs. quantity: Which matters most for Relationships? Poster presented at the 11th Congress of the M Sc and PhD Candidates of the Department of Psychology of the University of Zurich, 30th May, Zurich, Switzerland.

Milek, A., Goetz, C. J., Nussbeck, F. W., & Bodenmann, G. (2012). Alltagsstress: Keine Zeit für die Partnerschaft als Risikofaktor? [Stress in everyday life: „No time for spouse" as risk factor for relationship satisfaction]. Poster presented at the 48th conference of the German Society of Psychology (DGPs), 23. – 27. September, Bielefeld, Germany.

Milek, A. (2012). Wie viel Zeit verbringen Paare miteinander und wie? Darling, was machst du eben? [How much time do couples spend together? Darling, what are you doing just now?] Invited lecture at "Tagung Zeit und Familie – Reflexion, Prävention und Intervention" University of Zurich, 24th August, Zurich, Switzerland.

Milek, A., Goetz, C. J., & Bodenmann, G. (2012). How external stress poisons the relationship: Mediating mechanisms of couple time. Poster presented at the 10th Congress of the M Sc and PhD Candidates of the Department of Psychology of the University of Zurich, 31th May, Zurich, Switzerland.

Milek, A., Goetz, C. J., & Bodenmann, G. (2011). Time spent with spouse: Having children as a challenge. Poster presented at the Interdisciplinary International Conference pairfam "Partnership Relations in Context", Ludwig-Maximilians University Munich, 21-22 September, Munich, Germany.